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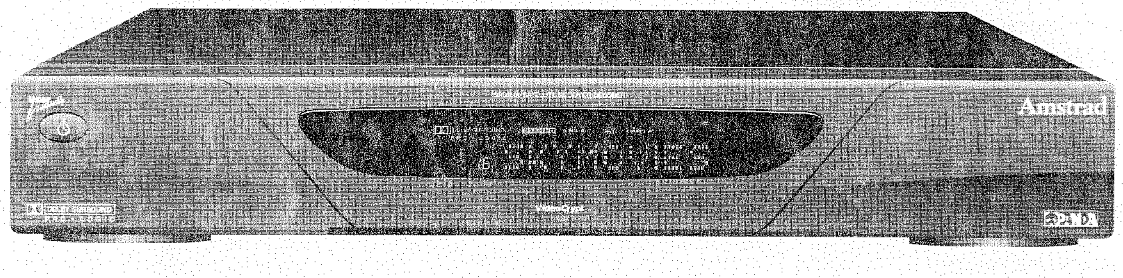

SRD2000

SATELLITE RECEIVER

SERVICE MANUAL

Contents	Page No.
Contents, Safety Tests	2
Technical Specifications	3
Circuit Description	4-19
Back Panel Socket Pin Outs	19
Video Amp Schematic Diagram & PCB Component Layout	20
Control Block Diagram 1	21
Control Block Diagram 2	22
Control Block Diagram 3	23
Video Block Diagram	24
Audio Block Diagram	25
Interconnection Block Diagram	26
PSU Schematic Diagram	27
Front Panel Schematic Diagram	28
Piggy Back PCB Schematic Diagram	29
Main PCB Schematic Diagram 1/3	30
Main PCB Schematic Diagram 2/3	31
Main PCB Schematic Diagram 3/3	32
Videocrypt Decoder Schematic Diagram 1/2	33
Videocrypt Decoder Schematic Diagram 2/2	34
2'nd Decoder Interface Schematic Diagram	35
Prologic PCB Schematic Diagram	36
Audio Amp MkI Schematic Diagram	37
Audio Amp MkII Schematic Diagram	38
PSU, Scart, Piggy Back PCB Comp Layout	39
Front & Prologic PCB Component Layout	40
Main PCB Component Layout	41
Audio PCB MkI Component Layout	42
Audio PCB MkII Component Layout	42
Videocrypt Decoder PCB Top Comp View	43
Videocrypt Decoder PCB Bottom Comp View	44
Cabinet Exploded View & Parts List	45
Electrical Parts List	46-52

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SAFETY TESTS

Please Note: When any work is carried out on this product, the following safety tests must be carried out to ensure continued safety.

1) Flash test from the mains lead with live and neutral together to all accessible metal points at 3kV.

2) Megger test at 500V dc from the mains lead with live and neutral joined together to all accessible external metal points, reading must not fall below 4M Ω.

In keeping with our policy of continually improving our service and technical quality of our products, we reserve the right to change type, manufacturers, sources of supply or technical specifications at any time.

Amstrad Plc.
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Technical Specifications

TUNER

Number of channels:	300
Tuning range:	700-2050 MHz
LNB High-band switching:	22 kHz tone (600 mV pk-pk)
LNB supply output:	13/17 V DC 450 mA
Local oscillator range:	9.3-12 GHz (and 0 GHz) Ku band 4.9-5.4 GHz (and 0 GHz) C band
Local oscillator fine tuning:	±10 MHz
Channel bandwidth:	27/36 MHz
Threshold:	6 dB typical (static)
Dynamic range:	-60 to -20 dBm
AM co-channel interference threshold:	-15 dBc typical
IF output:	480 MHz (36 MHz bandwidth)
IF output level:	-35 dBm typical

MODULATOR

UHF modulator output:	Channel 38 (adjustable 21-69)
TV system:	PAL I (adjustable I-BG)

VIDEO

Decoder system:	VideoCrypt I
Card Readers	2
External decoder input/output signal:	MAC/clamped/unfiltered (x2)
Input level (TV/VCR/AUX/EXT/LINE IN/DECODER):	1 V pk-pk, 75Ω
Output level (TV/VCR/LINE OUT/DECODER):	1 V pk-pk, 75 Ω
On-screen display:	10 rows x 24 columns (8 colours)
On-screen languages:	English, German, French, Spanish, Dutch, Polish, Italian, Czech
Programme timer:	8 event/1 year (once/daily/weekly)

SATELLITE AUDIO

Audio system:	Wegener Panda 1 stereo
Audio modes:	30
Audio subcarrier range:	5.0-9.0 MHz (stereo L/R subcarriers independently tunable)
Audio bandwidth:	130, 180, 200, 280, 380 kHz; 500 kHz (mono only)
Audio de-emphasis:	50 μs, 75 μs, J17
Audio signal routing:	Internal/external (via decoder)

SURROUND DECODER / AMPLIFIER

Stereo/surround system:	Dolby Pro Logic, Dolby 3 Stereo, Custom Effects
Amplifiers:	4 channels 25 W RMS per channel (4 Ω, 1 kHz, 10% THD)
Speaker impedance range:	3-8 Ω
Frequency response:	30 Hz - 25 kHz ±1.5 dB
Distortion:	0.04% THD typical
S/N ratio (weighted):	70 dB
Tone controls:	+18/-15 dB at 100 Hz bass (enhanced) ±10 dB at 10 kHz treble +6 dB/100 Hz, +3 dB/10 kHz loudness
Input level (TV/VCR/AUX/EXT/LINE IN/DECODER):	0.5 V RMS nominal at 10 kΩ min input impedance (2 V max)
Output level (VCR/DECODER):	0.5 V RMS nominal at 50 kHz input deviation (2 V max)
Output level (TV/LINE OUT):	0.5 V RMS nominal (volume controlled 0-3 V)
Sub-bass filtering:	100 Hz low-pass

GENERAL

Input/output connectors:	LNB 75 Ω F-type (x2) UHF 75 Ω coaxial (x2) TV 21-way SCART VCR 21-way SCART AUX - DECODER 2 21-way SCART DECODER 1 - EXT 21-way SCART FR, FL, SUR, CEN (speakers) 8-way sprung terminal LINE IN (VIDEO) RCA phono LINE IN (L/R) RCA phono (x2) LINE OUT (FRONT L/R) RCA phono (x2) LINE OUT (SUR) RCA phono (x2) LINE OUT (CENTRE) RCA phono LINE OUT (SUB-BASS) RCA phono IF OUT 75 Ω F-type
Mains supply:	230 - 240 V ac 50 Hz
Dimensions:	435 x 280 x 70 mm

LNB

Input frequency range:	10.70-11.80 GHz
Output frequency range:	950-2050 MHz
Local oscillator:	9.75 GHz
Gain:	55 dB
Noise figure:	1 dB typical
Polarisation switching:	Electrical (13/17 V)
Output connector:	75 Ω F-type

SRD2000 Circuit Description

To aid the description of the various complex circuits, the receiver has been split into 4 main functional blocks which are listed below:

1. Control Block
2. Video Block
3. Audio Block
4. Power Supply Block

All components and connections of the receiver will be described in one of these main blocks.

Control Block

There are 3 control Block Diagrams which describe this block. The main component is the uProcessor IC302 in the Piggyback PCB which is an NEC 8 bit uProcessor utilising 64K external ROM. A second uProcessor, IC301 on the front panel FIP PCB, controls the display of information on the front panel Field Indicator Panel (FIP) and the front panel buttons. This uProcessor is also an NEC device but has 16K internal memory and is especially for driving Vacuum Fluorescent Displays.

Control Block Diagram 1 details the control ports and their connection to the various PCBs. Diagram 2 names each control port of the control uProcessor and describes the connection to the Main PCB. Diagram 3 describes the data link between both uProcessors.

The control ports can be further split up into the following categories:

1. uProcessor Control Buses
2. uProcessor Video Control Ports
3. uProcessor PSU and Misc. Control Ports
4. uProcessor front panel data link
5. Expander Control Ports
6. Miscellaneous Control Ports

uProcessor Control Buses

I^2C-1

This Control Bus drives IC1, the E^2PROM which stores half of the programme information and the OSD stored options, the tuner, which selects the satellite channel, IC3, the audio signal processor, which demodulates and switches the audio and IC802, the L and R audio volume control.

Connections: Data Port 60 IC302 pin 27 → PLB2 pin 13 → (IC13 pin 35) → IC3 pin10 →
SDA COMMON Tuner1 pin4 → IC1 pin 5 → PLG1pin 4 → IC802 pin 12
Clock Port 61 IC302 pin 28 → PLB2 pin 11 → (IC13 pin 36) → IC3 pin9 →
SCL1 Tuner1 pin5 → IC1 pin 6 → PLG1 pin 5 → IC802 pin 11

I^2C-2

This Control Bus drives IC2, the E^2PROM which stores the 2nd half of the programme information, and IC806, the C and S audio volume control.

Connections: Data Port 60 IC302 pin 27 → PLB2 pin 13 → (IC13 pin 35) → IC2 pin5 →
SDA COMMON PLG1 pin 4 → IC806 pin 12
Clock Port 62 IC302 pin 29 → PLB2 pin 9 → (IC13 pin 37) → IC2 pin6 →
SCL2 PLG1 pin 6 → IC806 pin 11

DATA BUS

This uProcessor output bus controls IC8, the On Screen Display IC, IC242, the audio delay IC for Dolby Pro Logic, IC243, the expander IC for the control of the Dolby ICs and also IC800, the expander which controls the amplifiers and switches. In conjunction with these bus lines each IC will also require it's own enable line from the control uProcessor IC302 or a separate daisy chained Data input in the case of IC243.

Connections: Data Port 21 IC302 pin 58 → PLB1 pin 4 → (IC13 pin 2) → IC8 pin 7 → PLG1 pin 3
SER-BUS-DATA PLF1 pin 4 → IC242 pin 6→ IC800 pin 2
Clock Port 22 IC302 pin 59 → PLB1 pin 6 → (IC13 pin 3) → IC8 pin 2 → PLF1 pin 5
SER-BUS-CLK PLG1 pin 2 → IC242 pin 5 → IC243 pin 3 → IC800 pin 3

DOWNLOAD BUS (Digital Ready)

To download the contents of one receivers E^{2}PROM to another receivers, the receivers must be linked via this bus. This bi-directional bus is also used when an external digital decoder takes control of the receiver.

Connections: Data Port 26 IC302 pin 63 → PLB1 pin 14 → (IC13 pin 7) → R47 → SK3 pin 10
DOWNLOAD DATA (Decoder Scart)
Clock Port 27 IC302 pin 64 → PLB1 pin 16 → (IC13 pin 8) → R46 → SK3 pin 12
DOWNLOAD CLOCK (Decoder Scart)

uProcessor Video Control Ports

OSD ENABLE

As well as the Data Bus, IC8, the On Screen Display IC, also requires it's own enable line.

Connections: Port 25 IC302 pin 62 → PLB1 pin 12 → (IC13 pin 6) → IC8 pin 6

C/KU Control

By pressing the INSTALL or the TUNING buttons, the menus for BAND (C or Ku) and VIDEO INVERT (ON or OFF) can be accessed. When either of these menu options are changed this control line will toggle HI for Ku and OFF and LO for C and ON. (see the inverted video switch of the Video Block Diagram)

Connections Port 34 IC302 pin 5 → PLB2 pin 10 → (IC13 pin 13) → PLD1 pin 2→ TR910 Emitter

BB/DE Control

By pressing the TUNING buttons, the menu for Decoder Output can be set to one of four settings. Two of these settings are MAC and Unfilter. When either of these menu options are changed this control line will toggle HI for MAC, Clamped and OFF and LO for Unfiltered. (see the BB/Demph switch of the Video Block Diagram)

Connection: Port 35 IC302 pin 5 → PLB2 pin 12 → (IC13 pin 14) → PLD1 pin 3→ TR904 Emitter

CARD-RESET Control

When the CARD option in the Tuning menu is selected between A, B or AUTO, if there is a change over then this control line will pulse HI to simulate a Smart Card being removed and inserted again. (see the Smart Card input of the Videocrypt Block Diagram)

Connections: Port 14 IC302 pin 51 → PLB1 pin 9 → (IC13 pin 59) → PLD1 pin 13→ R964

VCC-SENSE Control

When the CARD option in the Tuning menu is selected for AUTO, the uProcessor requires information on wither the presently selected card is actually decoding. This control line being HI indicates that the Smart Card has been powered and is decoding.

(see the Smart Card input of the Videocrypt Block Diagram)

Connections: Port 03 IC302 pin 39 → PLB2 pin 3 → (IC13 pin 47) → PLD1 pin 11→ R951

AUTHORISE Control

For Pay Per View programmes, the user may be requested to press the Authorise button. If this happens then the Front Panel uProcessor, IC301, will receive the button press, communicate this to the main uProcessor, IC302 via the data link and IC302 will toggle this line LO. (see the Decoder CPU of the Videocrypt Block Diagram)

Connections: Port 31 IC302 pin 2 → PLB2 pin 4 → (IC13 pin 10) → PLD1 pin 10→ IC405 pin20

CARD-A/B Control

When the CARD option in the Tuning menu is selected for A, B or AUTO, the uProcessor will toggle this line HI for CARD A and LO for CARD B.

(see the Smart Card input of the Videocrypt Block Diagram)

Connections: Port 32 IC302 pin 3 → PLB2 pin 6 → (IC13 pin 47) → PLD1 pin 12→ R966

CHANNEL-MUTE Control
When the satellite channel is changed, to decrease the amount of time taken for the de-scrambling process to start, the uProcessor resets the VideoCrypt decoding hardware by toggling this control line HI.
(see the Smart Card input of the Videocrypt Block Diagram)
Connections: Port 13 IC302 pin 50 → PLB1 pin 11 → (IC13 pin 58) → PLD1 pin 9→ R445

VCR1 Control
The RECORD SOURCE button of the remote control has 3 options. This control line together with VCR2, from the OSD IC, control the video output to the VCR Scart. For LO, SAT is routed and HI, VCR is routed.
(see the VCR video source select switch of the Video Block Diagram)
Connections: Port 36 IC302 pin 7 → PLB2 pin 14 → (IC13 pin 15) →IC5 pin 2

VIDEO BLANK Control
When there is no video signal coming from the tuner, in order to get the OSD to appear without the picture distorting due to video noise, the video input to the OSD IC has to be blocked. This control lines only performs this function when the sync good detector has detected bad video and the uProcessor makes the decision to put this control line LO in order to block the video. To stop spurious tuner outputs upsetting an otherwise clean picture, the uProcessor software has a software filter to only blank the video when necessary. With good video signals this line will be HI Z.
(see the OSD Block of the Videocrypt Block Diagram)
Connections: Port 11 IC302 pin 48 → PLB1 pin 15 → (IC13 pin 56) →LK12 →D18

SYNC-GOOD Control
This control line is an input to the main uProcessor which detects wither the incoming video has good syncs or not and allows the uProcessor to make the decision on wither to blank the video or not. If the synchronisation of the video is good this control line will be HI Z otherwise it will be pulled LO.
(see the OSD Block of the Videocrypt Block Diagram)
Connections: Port 12 IC302 pin 49 → PLB1 pin 13 → (IC13 pin 57) →R134

uProcessor PSU and Miscellaneous Control Ports

LNB ON/OFF
When the receiver is put into stand-by or if a short circuit of the LNB power supply has been detected, this control line will go HI and the power to the LNB will turn OFF..
Connections: Port 30 IC302 pin 1 → PLB2 pin 2 → (IC13 pin 9) → PLA1 pin 10 →
PL603 pin 10 →IC602 pin 3

POLARITY H/V
In the Tuning menu the Polarity option can be set to Vertical or Horizontal. This control line will go LO for Horizontal and go HI Z for Vertical.
Connections: Port 37 IC302 pin 8 → PLB2 pin 16 → (IC13 pin 16)→ PLA1 pin 9 →
PL603 pin 9 →IC602 pin 1

S/C DETECT
This line is an input to the uProcessor to detect if the LNB power supply has been externally shorted. In normal operation this line will be HI and LO if there is a short circuit.
Connections: Port 02 IC302 pin 38 → PLB2 pin 5 → (IC13 pin 46) → TR12 collector

POWER GOOD
This line is an input for fast detection of a mains power failure which enables the uProcessor to perform certain functions before the +5 volt supply is lost and the uProcessor stops functioning. The line is HI in normal operation and LO on power failure. The uProcessor has some software filtering to prevent glitches in the power supply manifesting incorrectly as a power failure.
Connections: Port 01 IC302 pin 37 → PLB2 pin 7 → (IC13 pin 45) → TR25 emitter

FUNCTION
In the tuning menu the External Switch option can be toggled OFF or ON. For OFF this control line is LO and for ON it is HI.
Connections: Port 33 IC302 pin 4 → PLB2 pin 8 → (IC13 pin 12) →PLJ1 pin 8→ PL700 pin 8→ R704

DEC-8
This is a bi-directional port which enables an external decoder or piece of A/V equipment to signal to the uProcessor that it is connected or is de-scrambling via the +12 Volt signal on the Scart pin 8. If this signal is present this input will be HI. Alternatively this line is also used as an output to select between AUX or EXT. LO for AUX and HI for EXT.
Connections: *Port 17 IC302 pin 54 → PLB1 pin 3 → (IC13 pin 62) → PLJ1 pin 4→* D700

VCR-8
This is an input to the uProcessor which enables a piece of A/V equipment to signal to the uProcessor that it is connected or is de-scrambling via the +12 Volt signal on the Scart pin 8. If this signal is present this input will be HI.

Connections: *Port 16 IC302 pin 53 → PLB1 pin 5 → (IC13 pin 61) → D9*

TV-8
This is an output for the uProcessor to signal to the Scart connected TV that the receiver is powered out of standby. In some TVs the presence of +12 Volt on pin 8 of the Scart will put the TV automatically into A/V input mode and thus the satellite video picture will be viewed on the TV. For the receiver in standby this control line will be HI and LO out of stand-by.
Connections: *Port 15 IC302 pin 52 → PLB1 pin 7 → (IC13 pin 60) →R88*

DPL ENABLE
As well as the Data Bus, the Digital Delay Integrated Circuit, IC242, requires it's own dedicated enable line.
Connections: *Port 23 IC302 pin 60 → PLB1 pin 8 → PLF1 pin 6 → IC242 pin 4*

EXP 1/2-ENABLE
As well as the Data Bus, the Port Expander Integrated Circuits, IC243 and IC800, require there own dedicated enable lines.

Connections: *Port 63 IC302 pin 30 → PLB1 pin 19 → (IC13 pin 38) → PLG1 pin 1→*
PLM pin 10→ IC243 pin 1→ IC800 pin 1

uProcessor Front Panel Data Link

F/P LATCH/KEY DATA
This communication link transfers the front panel buttons being pressed.
Connections: Port 20 IC302 pin 57 → PLB1 pin 1 → (IC13 pin 1) →LK2C →LK2B → PLK pin 5 → FIP Front Panel PCB *PL302 pin 12 → IC301 pin 11→ LK4C→ LK6C →IC301 pin 46*

FIP RESET
To prevent the main uProcessor and the FIP uProcessor from starting up at separate times and thus latching up the FIP uProcessor, both resets are tied together to ensure the same start up time.
Connections: *Port RESET IC302 pin 35 → PLB1 pin 2 → (IC13 pin 18) → PLK pin 4 →*
FIP Front Panel PCB *PL302 pin 14 → LK14A → LK15A → IC301 pin 17*

KEY W/P DATA
This communication link transfers the front panel buttons being pressed.
Connections: Port 24 IC302 pin 61 → PLB1 pin 10 → (IC13 pin 5) → LK1C → LK1B → PLK pin 6→
FIP Front Panel PCB *PL302 pin10→IC301 pin12→LK7D→*LK8D*→IC301 pin45→R338*

ACKN
This link is for the FIP uProcessor to send an acknowledge to the main uProcessor.
Connections: Port 66 IC302 pin 33 → PLB2 pin 1 → (IC13 pin 41) → LK5B →LK5C →PLK pin 7 → FIP Front Panel PCB *PL302 pin 8 → IC301 pin 13*

IR-DATA
The Infra-red data stream from the IR sensor is routed directly to the main uProcessor.
Connections: *Port 00 IC302 pin 36 → PLB2 pin 15 → (IC13 pin 44) → PLK pin 2 →*
FIP Front Panel PCB *PL302 pin 18→IC301 pin 28→LK10E→LK9E→IC300 pin 1→* *IC301 pin 47*

DATA BUS
This uProcessor output bus, which has previously been described, is also used in the communication link between the two uProcessors.
Connections: SER-BUS-DATA
Port 21 IC302 pin 58→PLB1 pin 4→(IC13 pin 2)→LK3C→LK3B→PLK pin 3 →
FIP Front Panel PCB *PL302 pin 16→ LK1A → LK2A→ IC301 pin 16*

SER-BUS-CLK
Port 22 IC302 pin 59→PLB1 pin 6→(IC13 pin 3)→LK4C→LK4B→ PLK pin 8→ FIP Front Panel PCB *PL302 pin 6 → IC301 pin 14*

Expander Control Ports

MUTE-2
This mutes the L/R internal amplifier
Connections: Port 0 IC800 pin 4 → IC801 pin 4

TV-SCART-SWITCH
Switches TV-Scart source between Centre and L/R.
Connections: Port 1 IC800 pin 5 → R842

MUTE-1
Hardware optional mute
Connections: Port 2 IC800 pin 6 →IC802 pin 9 →IC806 pin 9

CONFIG-C
Switches internal amplifier between Surround or Centre.
Connections: Port 3 IC800 pin 7 →R832

DEC-2
To main board for decoder selection, see below
Connection:: Port 4 IC800 pin 14 → PLG13

DEC-1
As above, see table
Connections
Port 5 IC800 pin 13 → PLG12

Decoder Source	*DEC1*	*DEC2*
VCR	*0*	*0*
CLAMPED	0	1
TV	1	0
MAC/UNFILT	1	1

MUTE-3
This mutes the S/C internal amplifier
Connections: Port 6 IC800 pin 12 → IC805 pin 4

TV SCART MUTE
Mutes audio on TV-Scart
Connections: Port 7 IC800 pin 11 →R848
NOISE CONT
Switches test tone (noise) ON/OFF to outputs; see table below
Connections: Port 0 IC243 pin 4 →IC241 pin 23

NOISE CNT1
Decodes test tone to one output; see table below
Also it selects "normal mode". see table under "wide"
Connections: Port 1 IC243 pin 5 → IC241 pin 24

NOISE CNT2
Decodes test tone to one output; see table below
Also it selects custom effects L-R or L+R.

Connections: *Port 2 IC243 pin 6 →R286→IC241 pin 25*

	ncont	*ncnt1*	*ncnt2*
Audio	1	*x*	*x*
Left tone	0	0	0
Centre tone	0	0	1
Right tone	0	1	0
Surround tone	0	1	1

MODE-1
Decodes 2/3/4 channel mode; see table below
Connections: *Port 3 IC243 pin 7 → R270*

MODE-2
Decodes 2/3/4 channel mode; see table below
Connections: *Port 4 IC243 pin 14 →R268*

Mode	*mode-1*	*mode-2*
2ch	0	0
3ch	0	1
(3ch	1	0)
4ch	1	1

WIDE
Selects "wide" mode; see table A2.
Connections: *Port 5 IC243 pin 13 → R269*

Mode	*wide*	*ncntl*
normal	1	0
phantom	1	1
wide	0	1

LINE IN SWITCH
Selects LINE-IN
Connections: *Port 6 IC243 pin 12→ R275→PL241 pin 11*
PSEUDO
Selects Pseudo surround mode
Connections: *Port 7 IC243 pin 11 →R274*

Miscellaneous Control Ports

VCR / OTHER
Not used in SRD2000
(see the DECODER audio source select switch of the Audio Block Diagram)
Connections: *Port 0 IC3 pin 5 →IC6 pins 9 & 10*

UHF -DIST
In the SURROUND menu, the configuration options are split between UHF and SCART configurations. For the UHF options, this control line will be HI to route the A/V going out to the TV Scart to the modulator. For the SCART options, this control line will be LO to route the A/V going out to the VCR Scart to the modulator.
(see the UHF video source select switch of the Video Block Diagram and the UHF audio source select switch of the Audio Block Diagram)
Connections: *Port 1 IC3 pin 4 → L18 →IC11 pins 9 & 10*

TV-1
The VIEW SOURCE button of the remote control has 3 options. This control line together with TV-2, control the video output to the TV Scart. For LO, either SAT, TV or LINE-IN are routed and for HI, VCR, AUX or EXT are routed.
(see the TV video source select switch of the Video Block Diagram)
Connections: *Port 0 IC8 pin 2 → IC9 pin 2*

TV-2
The VIEW SOURCE button of the remote control has 6 options. This control line together with TV-1, control the video output to the TV Scart. For LO, either TV, VCR or LINE-IN are routed and for HI, SAT, AUX or EXT are routed.
(see the TV video source select switch of the Video Block Diagram)
Connections
Port 1 IC8 pin 22 → LK9 → IC9 pin 3

View Source	*TV1*	*TV2*
TV LINE-IN	*0*	*0*
SAT	0	1
VCR	1	0
AUX/EXT	1	1

VCR-2

The RECORD SOURCE button of the remote control has 4 options. This control line together with VCR-1, from the main uProcessor , control the video output to the VCR Scart. For LO, SAT AND VCR are routed and HI, AUX and EXT are routed.

(see the VCR video source select switch of the Video Block Diagram)

Connections	*View Source*	*VCR1*	*VCR2*
Port 2 IC8 pin 23 → IC5 pin 3	*SAT*	*0*	*0*
	AUX/EXT	0	1
	VCR	1	0
	AUX/EXT	1	1

Video Block

The video Block Diagram shows the video chain from Tuner through to the TV Scart and all the other Scart inputs and outputs. The main switching element is the LA7952 Video IC which has internal buffer amplifiers. The diagram is split into two main parts with the VideoCrypt PCB performing most of the video processing and the Main PCB handling the majority of the switching. The block diagram can be broken down into the following sections:

1. Tuner
2. Inverter Amplifier
3. De-emphasis and switches
4. Video Band pass filter
5. VideoCrypt Decoder Input Interface
6. VideoCrypt Decoder Output Interface
7. Video amplifier pcb
8. Double Card Reader Switching
9. TV Video source select switch
10. DEC Video source select switch
11. VCR Video source select switch
12. On Screen Display
13. Line in switch
14. UHF Video source select switch
15. AUX / EXT Video source select switch

Tuner

The tuner has 7 connections, 3 are power supplies, 2 are I²C, 1 is a 4MHz reference and the other is the baseband output on pin 7 which is fed directly to the VideoCrypt PCB via PLE1 pin 2 and buffered by TR5 to the audio sub-carrier filter.

Inverter Amplifier

The incoming baseband signal from the Tuner is amplified by TR905 which has a gain of 1. Both an inverted output, buffered by TR908, and a non-inverted output are taken from the transistor and fed to the analogue switch, IC900, which is controlled by the C/KU or Video Invert variables on the OSD menus. TR910 is used to convert the +5 Volt logic signal from the uProcessor to a +12 Volt signal to switch IC900.

De-emphasis and switches

The output of IC900 is buffered by TR907 and is also fed to pin 3 of the switch input as the unfiltered signal. After TR907, the signal is de-emphasised by the amplifier comprising TR906 and TR909. Capacitors C903, C916 and resistor R908 set the time constant of the de-emphasis network. The output of this circuit is then fed to pin 5 of the switch as the de-emphasised signal.

Video Band pass filter

Inductors L900, L901 and capacitors C916-9 and C921 form a 5th order 5MHz low pass filter. To compensate for the phase shift of the filter the signal is buffered by TR915 and TR916 and is phase compensated to reduce the Chrom to Luma delay

Videocrypt Decoder Input Interface.

VideoCrypt Decoder schematic: Video from the tuner is fed in at PLV 900 pin 2.The sound intercarriers are removed from the composite signal by the sound trap filter formed by R163, L900, L901, C916, C917, C918, C919, C921.

Transistors TR915 and TR 916 form an amplifier to give correct amplitude composite video into the decoder.

Components TR 913, R938, R936, and C920 form a delay corrector to compensate for group delay errors built up in the sound trap.

Components R942, L902, C923 and C924 form an anti-aliasing filter for the A/D converter in the PTV 110.

Components C911, R944, R943, TR 917, R932, RV901, R937, C909, TR 920, R946, TR919, R946, C922, and R 936 form an energy dispersal clamp. C 911 couples the video waveform to the dc bias potential formed by R 944 and R 943. This voltage is slightly lower than the wanted clamp voltage, so that C911 is generally discharging. Transistors TR 919 and TR 920 form a comparitor such that
TR 920 turns on when the clamped video voltage at the emitter of TR 914 falls below the voltage on the wiper of potentiometer
RV 901. Because C991 is discharging, this only happens at the lowest point of the video waveform which is the sync tip.

When TR 920 turns on, so does TR 917, which immediately charges C 911 until the sync tip is clamped to the voltage on the wiper of RV 901 at which point TR 920 is turned of by comparitor action. TR 920 will remain turned off until the next sync tip comes along and the clamping action repeats. R 936 and C922 filter off the colour burst (and also sparklies under low signal conditions) to prevent false triggering of the clamp. C911 couples the video waveform to the dc bias potential formed by R944 and R943. This voltage is slightly lower than the wanted clamp voltage, so that C911 is generally discharging. Transistor TR919 and TR920 from a comparator such that TR914 falls below the voltage on the wiper of the potentiometer RV901. Because C991 is discharging, this only happens at the lowest point of the video waveform which is sync tip.

When TR920 turns on, so does TR917, which immediately changes C911 until the sync is clamped to the voltage on the wiper of RV901 at which point TR920 is turned off by comparator action. TR920 will remain turned off until the next sync tip comes along and clamping action repeats. R936 and R922 filters off the colour burst (and also sparklies under low signal condition) to prevent false triggering of the clamp.

Videocrypt Decoder Output Interface

Once the video has been decoded, the video is processed before being fed back into the main board.

R423 act as the load resistor for the D to A converter. The buffer formed by TR409, R425 and R417 lifts the dc bias to a suitable point to make the amplifier formed by transistor TR405 and TR416 and capacitor C431 give a slight HF lift.

Circuitry around TR404 and Tr403 inserts black and white OSD characters under control of IC PTV112. Components C426 and L401 makes the black and white levels of the characters slightly opaque. This allows the circuit top be used with secam signal without the OSD smearing.

Components around L400, L402 and L403 form a low pass filter to remove HF digital noise from the composite video and also to form a reconstruction filter. HF noise may cause interference to the UHF channels spreading in the modulator if not removed. Group delay is corrected by TR408, R409, C427 and C429.

CMOS switch in IC407 selects the output video type, either from the decoder or directly from the tuner. This gives better video quality for non videocrypt signal. Source selection is done automatically by the main videocrypt microprocessor which detects the presence or absence of videocrypt data from the incoming video itself. When the switch changes over, there is a slight sync jump which may be seen as a slight jump or loss of sync of the picture dependent upon the TV. This is quiet normal and is invisible given the processing delay of the videocrypt decoder.

The amplifier formed by transistor TR407, TR406 and TR911 match the output levels of the decoder with those of the main board.

Video Amplifier PCB

In order to achieve the optimum video level on Decoder SCART during MAC and Unfiltered settings an extra Video amplifier PCB is fitted to some models. The function of the PCB is simply to add extra video gain to the de-emphasised and baseband video feeds to the decoder SCART.

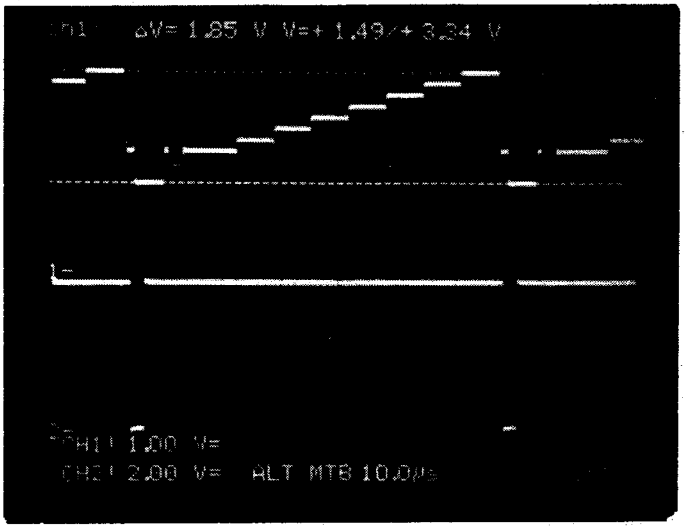
Double Card reader switching.

IC901 and ic902 multiplex clock, data and reset lines to the two card readers under control of card A line from the receivers processor. Power supply and programming voltage switching are switched by transistor TR900 to TR903.

Alignment and Test Point Waveforms.

Composite Video input and overflow..

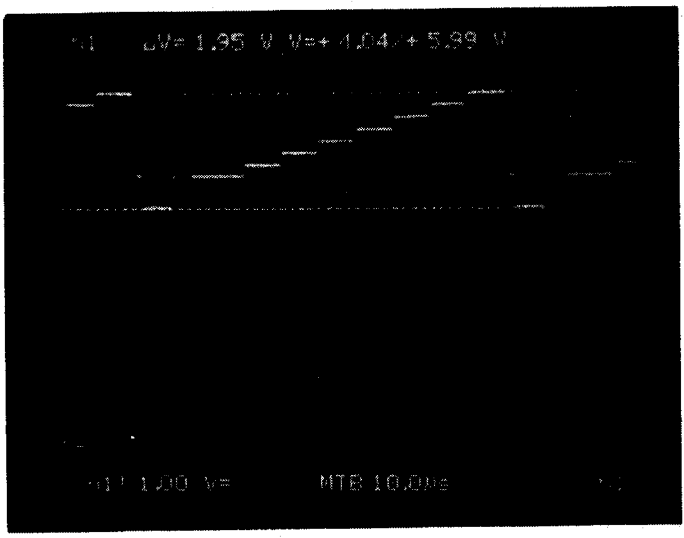
Inject grey scale modulated to RF, observe waveform at TP400 with an oscilloscope.
Adjust video amplitude with RV900 to give 1.75 to 1.95 volts from sync tip to white.



Observe simultaneously the waveform on the overflow test point TP401.
Adjust black level dc offset with RV901 until the overflow waveform is just synchronous with the syncs. check that black level is 1.85 to 2.15volts DC.

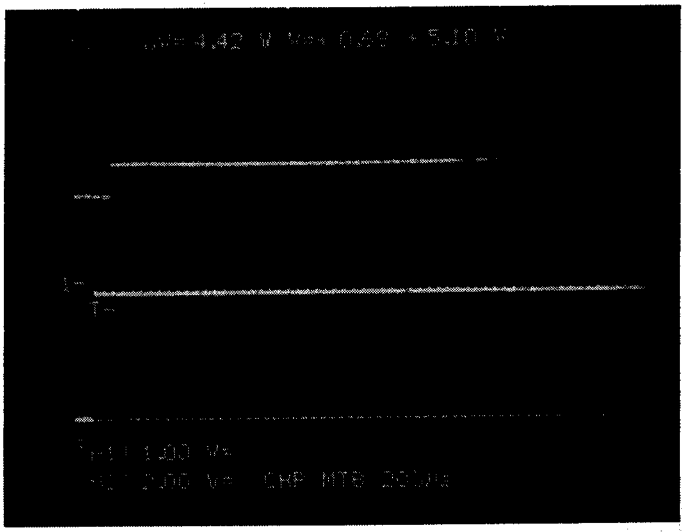
Composite video output

Inject grey scale modulated to RF , observe waveform at TP901 with an oscilloscope.



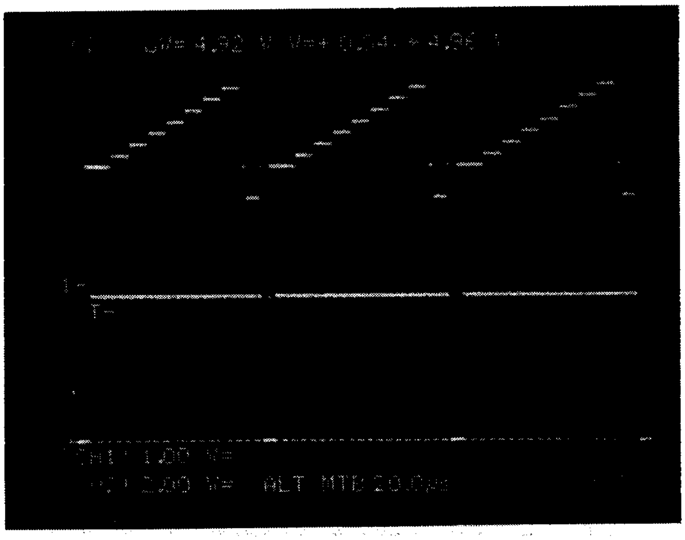
Vertical sync.

Inject grey scale modulated to RF, observe waveform at TP405 with an oscilloscope.


ΔV= 4.42 V V=+ 0.69 + 5.10 V
1
T
CH1 1.00 V=
CH2 2.00 V= CHP MTB 200μs

Horizontal Sync.

Inject grey scale modulated to RF, observe waveform at TP402 with an oscilloscope.


ΔV= 4.92 V V=+ 0.04 + 4.96
1
T
CH1 1.00 V=
CH2 2.00 V= ALT MTB 20.0μs

DC Voltage from Power Supply on Decoder PCB

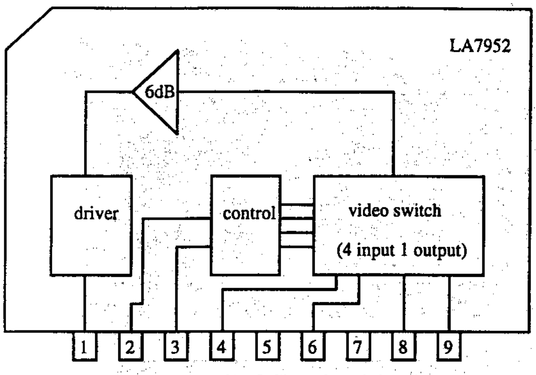
Use a DC voltmeter to check the following voltages.
5 volts at TP910 to lie between 4.75 and 5.25 volts.
12 volts at LK900 to lie between 11.4 to 12.6 volts.
27 volts at TP909 to lie between 24.0 to 30 volts.

Note: On early version of the board, TP909 was disconnected and no reading will be present. it is OK in this case to measure at pin 3 if PTV113

TV, DEC and VCR Video source select switch

IC 9, 7 and 5 perform these functions

Video Switch Block Diagram:


LA7952
6dB
driver
control
video switch
(4 input 1 output)
1
2
3
4
5
6
7
8
9
video out
A
B
IN1
GND
IN2
+12V
IN3
IN4

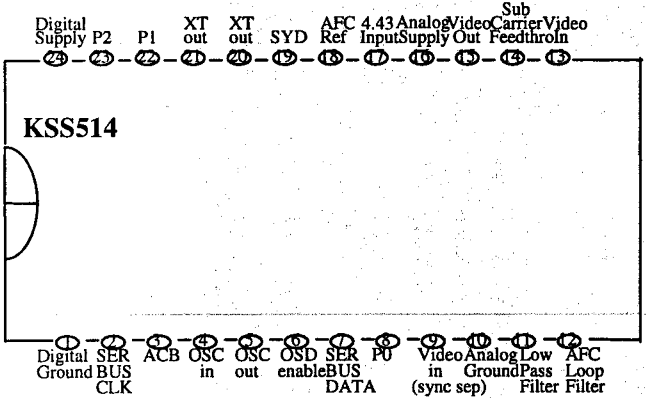
The diagram above shows the internals of the video switch which is used to route the video signals to the TV, DEC and VCR Scarts. The remote control buttons VIEW, DECODER and RECORD SOURCE are used to control the routing via the uProcessor, either directly through it's own ports or indirectly via ports from the OSD IC or the port expander ICs. The logic inputs are +5V TTL with VH 3.0V and VL 1.5V. The video input bias is app. +3V and the video output is biased at app. +6V.

(For the logic truth tables see the Control section.)

On Screen Display

IC8 performs the presentation of the On Screen menus.

On Screen Display


Digital Supply
P2
P1
XT out
XT out
SYD
AFC Ref
4.43 Input
Analog Supply
Video Out
Sub Carrier Feedthro
Video In
24
23
22
21
20
19
18
17
16
15
14
13
KSS514
1
2
3
4
5
6
7
8
9
10
11
12
Digital Ground
SER BUS CLK
ACB
OSC in
OSC out
OSD enable
SER BUS DATA
P0
Video in (sync sep)
Analog Ground
Low Pass Filter
AFC Loop Filter

Power Supplies (Pins 1, 10 16 &24)

There are 2 separate supplies to the IC, the analogue and the digital +5 Volt supplies. The analogue supply has a simple low pass filter while the digital supply has a more complex regulator which also drops the digital supply to it's minimum to prevent jitter and interference.

uProcessor Control (Pins 2, 6 & 7)

This IC is controlled via the serial data bus and a dedicated enable line. The IC can only be written to by the main uProcessor which sets the OSD background colour, the OSD text and the output ports for controlling external devices.

Video Inputs (Pins 9, 13 & 14)

The IC has 2 video inputs. One is for the internal clamp circuitry which generates the necessary horizontal and vertical sync. pulses used to insert the OSD text in the correct positions. The other input goes to the video mixer where the OSD text is mixed with the incoming live video. Before the live video reaches this input, the video goes through a switch, TR15, which is opened whenever there is a lack of a good video signal which has clean sync pulses. By opening the switch there is no disturbance caused by the bad video, and the OSD can be displayed on a blue background. To prevent smearing on SECAM signals some of the chroma sub-carrier from the live video is fed into pin 14 which ensures the OSD text also has some chroma component when overlaid on live video.

Oscillator Circuits (Pins 4, 5, 20 & 21)

In this application of the IC, an external crystal at 4 times the chroma sub-carrier is used to generate the colour OSD background. The frequency of this oscillator is set by the 17.73445 crystal and can be fine tuned by the variable capacitor C106. The factory setting of this oscillator is 17.7340MHz ± 100Hz which takes into account the loading of a X10 oscilloscope probe on pin 21. The oscillator on pins 4 and 5 is the character pixel clock which sets the time duration of a pixel and hence the width of the characters.

Control Ports (Pins 8, 22 & 23)

This IC is used to control the TV view source selection switch by controlling Ports 0 and 1. The main uProcessors instructs this IC to set the ports HI or LO via the serial data bus. The 3rd control port, P2, is used to control the VCR record source selection switch in conjunction with a port from the main uProcessor.

Video output (Pin 15)

The video output is buffered by TR18, filtered by L9 and is then buffered again by TR16 to provide a 75Ω source impedance driver to the TV Scart.

SYNC Detect (pin 19)

This output line is fed to the main uProcessor to signal wither the incoming live video has good or bad syncs. If the syncs are bad the line will go LO and the uProcessor will then activate the Video Blanking control, thus removing the video input at pin 13, and display the colour OSD background for readable OSD.

External capacitors (Pins 3, 11, 12 & 18)

All of the above pins have high value external capacitors, which cannot be integrated on a silicon wafer, and are required for various filter circuits used in the AFC loop filter, the SYNC separator low pass filter and the AFC reference filter.

Line in switch

IC6 is used to switch between the video input from the TV Scart and the Line IN Phono input on the Dolby PCB. The selected signal is then fed to the TV video source select switch. Port 6 of the expander IC on the Dolby PCB controls the switching.

UHF Video source select switch

In the SURROUND menu the configuration settings are either UHF or Scart. The purpose of this is that if the TV is connected via the Scart input then the UHF output of the receiver can be freed so that satellite video is always available on the UHF output. By doing this, another TV in a different room in the house can view the satellite signal irrespective of what is being viewed on the TV next to the receiver. IC11 provides this function by switching the video to the modulator between the signal fed to the TV Scart and the signal fed to the VCR Scart. Note should be made of the fact that the VCR Scart output can be SAT, VCR, AUX and EXT and therefore the satellite signal may not always be on the UHF output.

AUX / EXT Video source select switch

This switch selects which one of the two inputs, AUX or EXT, is fed to the VCR and TV video select switches. When external decoders are connected, if pin 8 of the DEC1/EXT Scart is activated HI, then the switch will automatically switch over to the DEC1/EXT input even if the uProcessor has set the input to be DEC2/AUX., thus DEC1 input has priority. If no decoders are connected, and hence the pin 8 of each Scart will be inactive, then the uProcessor can take control of the switch.

Audio Block

The Multi Standard Sound Processor MSP3400 C forms the centre core of the audio circuitry in the receiver. It demodulates the incoming satellite FM signals and performs all the input and output Scart switching as well as providing output ports for controlling other external switches. The main output from this IC is then fed to the Dolby PCB which extracts the 4 channels of audio from the stereo signals. These 4 channels are then fed to the amplifier PCB where the volume, bass and treble are controlled before being fed to high power and low power amplifiers for driving external speakers and external amplifiers. The block diagram can be broken down into the following parts:

1. Audio sub-carrier BaseBand Filter and Amplifier
2. MSP3400 C sound processor
3. Analogue switch
4, Dolby Pro Logic Decoder
5. Dolby Surround Delay
6. Expander
7. Volume Control
7. High Power amplifiers
8. TV Scart switch
9. Sub-woofer output
10. Pre-Amplifier
11. UHF audio source select

Audio sub-carrier BaseBand Filter and Amplifier

Before being fed to the sound processor the incoming FM sub carriers require to be filtered and amplified to improve the S/N of the demodulated audio.TR5 acts as a buffer between the tuner and the filter. XL7 is a 4.43 MHz trap which removes any chroma signals that may come from the video and L6 and the associated capacitors form one half of a Band Pass Filter between the frequencies of 5 to 9MHz. The other half of the BPF is made from the tuned circuit of TR2 with L7 and C19 setting the tuned frequency at approx. 9.6 MHz to give the overall BPF.

MSP3400 C sound processor

This IC, using Digital Signal Processing, converts the incoming sound subcarrier (Mono or stereo) to audio. This IC also controls each of the following functions: frequency of subcarrier, Mono/Stereo, IF bandwidth, de-emphasis Wegner Expander (On/Off), part of the custom effect and the audio routing between each of the Scart sockets. The IC is controlled by the uProcessor via the I²C1 BUS and if the IC is not functioning the I²C1 may be hung up, causing very slow functioning of the receiver, as the IC cannot reply back to the uProcessor. Ref. to the audio block diagram for more details.

Summary description: The Input to the Dolby Pro Logic decoder is routed either from the MSP sound processor main audio output or the line-in RCA input. This decoder with the addition of a delay IC performs all the necessary Pro Logic decoding producing the LEFT, RIGHT, CENTRE, and SURROUND channels. These are then fed through to a pair of stereo volume control ICs where in addition to volume, trim/bass/treble/loudness/mute are also controlled.

A set of four outputs from the latter ICs drive the integral power amplifiers, a separate set of four outputs drive the pre-amplifier (early models only) to the line-out RCA sockets and the TV SCART lines.

A low pass filter / amplifier drives the RCA sub-bass output.

DOLBY PCB:

Analogue Switch IC 240

Two of the analogue switches on this IC switch the stereo input to the Dolby Pro Logic decoder to either the line-in RCA socket or the main stereo output from the MSP3400 IC. The third analogue switch on this IC is used to select between surround and pseudo-surround modes.

Dolby Pro logic Decoder IC 241

This IC decodes the stereo audio signal to the LEFT, RIGHT, CENTRE, and SURROUND signals which are fed through to the amplifier board. The surround signal is first fed to a digital delay chip (15-30ms in Dolby mode) before being fed to the amp board. This IC generates the audio modes (Dolby 3 stereo, Normal stereo) as well as the test tone used to set-up the trim levels. This test tone can be used to check the audio path through the four channels.

Dolby Surround Delay IC 242

This IC receives the decoded surround (or pseudo surround) signal and applies a delay (15-30ms in Dolby mode, or 0-32ms in custom effects mode) before feeding back the signal to the Dolby decoder IC. Controlled by a three wire bus.

Expander IC 243

This IC provides eight logic outputs used to control the line-in analogue switch IC as well as the Dolby decoder (Test tone and mode control). Controlled by a three wire bus.

AMPLIFIER PCB:

Expander IC800

This is as the above IC but it controls IC804 (analogue switch), amplifiers mute, and DEC-1, DEC-2 signals used on the main board.

Volume control IC802, IC806

These ICs control the volume/bass/treble/loudness/mute and trim levels of the four audio channels (Left, Right, Centre, and Surround). I²C bus is used to control these ICs.

High Power Amplifiers IC801 and IC805

These are two pairs of stereo audio amplifiers for the four channels. A separate 18V (nominal) rail powers these amplifiers.

TV Scart / (C/S) switch IC804

One analogue switch on this IC is used to select the input to the Centre/Surround amplifier. The other two analogue switches control the signal path (centre or Left/Right) to the TV SCART.

Sub-woofer output

The sub-woofer circuit is a discrete low pass 100Hz filter / summing amplifier circuit on the early models which sums the Left Right and Centre channel Bass frequency for amplification by and external sub-woofer or normal amplifier. On the later models the amplifier used is an OP-AMP.

Pre-amplifier

On early models; IC803 is a quad op-amp which pre-amplifies the 4 audio channels and feeds the signals to the line-out sockets.
TR805 and TR806 are used for form a low-pass filter/amplifier for the sub-woofer line-out output.
On later models; the Pre-amplifier is removed; the 4 audio channels are fed directly to the line-out sockets since higher performance volume control ICs are used.
The sub-woofer filter/amplifier was also improved on these models by replacing the transistor circuitry with an operational amplifier.

UHF audio source select

On any configuration that ends with UHF, the centre channel is routed to the Modulator for the TV to produce the centre dialogue. With Scart configurations the output to the VCR is instead routed to the Modulator. One third of IC11 performs the switching with switching control coming from the MSP3400C.

Power Supply Block

PSU Switching IC Functional Description

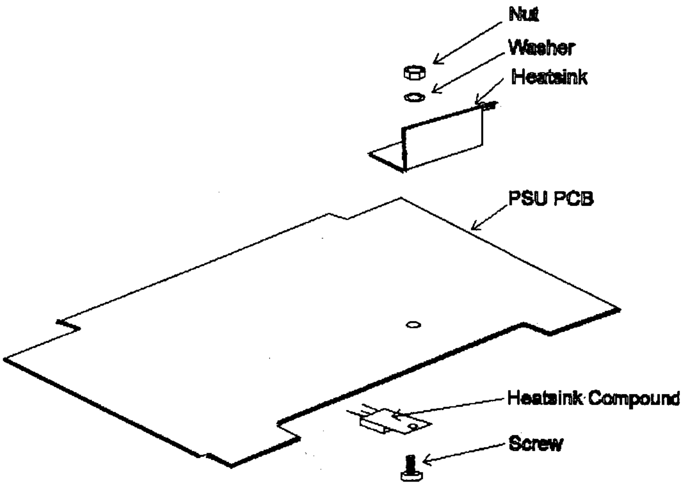
IC604, which has only three pins, implements all the functions necessary for the off line switch mode power supply. IC604 integrates a high voltage (700 Volts) power MOSFET and CMOS control circuitry. The control circuitry switches the integrated power MOSFET at a fixed frequency of 100kHz ±10% while the power supply is operating.

The control circuitry adjusts the duty cycle of the power MOSFET to maintain the regulation of the power supply output, it performs this function by monitoring the current feedback into the Control pin 1. The control circuitry also protects the power MOSFET by monitoring its current and temperature.

If you need to change IC 604 follow fitting instructions carefully. The SMT 'D-PAK' device should be replaced with a TO220 version as an upgraded device.

Fitting Instructions For The TOP204-TO220

1) With the aid of desoldering braid, desolder the body of the TOP204 from the PCB followed by the pins.
2) Remove excess solder from the finned copper area of the PCB to ensure a smooth and flat surface.
3) Using the nut bolt and locking washer fit the TOP204 to the PSU and heat sink as shown in the diagram below.
4) Solder the two legs to the PCB, then solder the body of the TOP204 to the PCB



! Please note, the heatsink assy. will have 300VDC when mains supply is connected

PSU Fault Finding Instructions

PSU Check: If all DC Voltages are dead.

a) REMOVE the mains power from unit.

b) Inspect the fuse fitted to the PSU PCB. If blown replace with an identically rated fuse. Re-apply power. If the fuse blows, go to the test 3b).

c) IC604 test: Disconnect mains from the unit. Remove the two screws that hold the PSU PCB in place. Locate IC604 soldered flat onto a large silver ground area on the underside of the PSU PCB. Inspect IC604 body; if it looks chipped, cratered or burnt replace (see above) and repeat the fuse check.

Checks all DC Voltage rails to main PCB.

a) Apply mains power to unit. FIP STBY segment should light.

b) Connect the -ve lead of a voltmeter to the tuner's metal mounting bracket (0V) or to any of the PCB links silk-screened 0V. (Note: this test relies on a good 0V link between the PSU and main PCBs).

c) Measure the DC voltage on the silk-screen link marked "+5V" (found on PL602).
   i. If it is +5V +/- 0.25V Pass to test 1d), else continue.
   ii. If the DC voltage on D607's cathode, (D607 is found below D611 on PSU PCB), is +5V +/- 0.5V (+6V off load). Pass to test 1d) else continue.
   iii. With power off, check for good continuity between D607 cathode and the +5V link to the main PCB.

d) Measure the DC voltage on the silk-screen link marked "+12V" (found on PL602).
   i. If it is +12.5V +/- 0.5V Pass to test 1e), else continue. (up to +16V off load).
   ii. If the DC voltage on D611's cathode is +12V +/- 0.5V Pass to test 1e), else continue.
   iii. With power off, check for good continuity between the +12V line to main PCB.

e) Measure the DC voltage on the silk-screen link marked "+28V" (found on PL602).
   i. If it is +29V +/- 2V Pass to test 1f), if not continue.
   ii. If the DC voltage on D609's cathode (PSU) is +30V +/- 3V Pass to test 1f), if not continue (up to +37V off load).
   iii. With power off, check for good continuity between D609 cathode and the +28V link

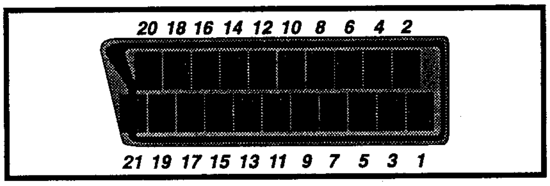
f) Measure the DC voltage at D8 cathode (Main PCB by Tuner)
   Should be 27V±5%. If not replace D8.

g) Additional rails for the FIP PCB should be checked on PL601: +5VuP (separate rail for the microprocessor), -26V for the FIP. Check Voltage at D608 if -26V, not present.

h) Check D613 if -8V rail not present on PL603 this provides voltage to Audio and Video stages.

i) Dedicated +18V rail for the power amp. is rectified by D610 (TO220 package),this rail will correctly raise to 24V in standby, when amplifiers are muted.

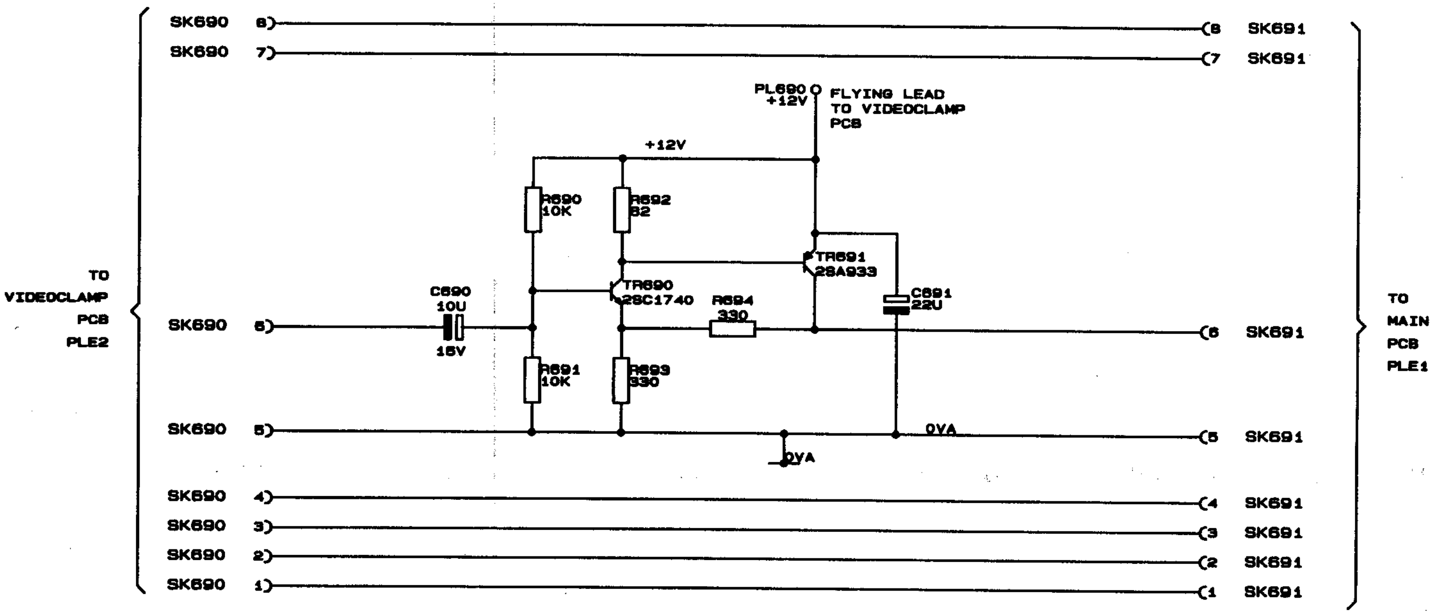
BACK PANEL SOCKETS (SCART)



	TV	*VCR*	*DECODER 1 - EXT*	*AUX - DECODER 2*
1	Audio out R	Audio out R	Audio out R	Audio out R
2	Audio in R	Audio in R	Audio in R	Audio in R
3	Audio out L	Audio out L	Audio out L	Audio out L
4	Audio ground	Audio ground	Audio ground	Audio ground
5	Blue ground	Ground	Blue ground	Ground
6	Audio in L	Audio in L	Audio in L	Audio in L
7	Blue*	(not used)	Blue*	(not used)
8	Device control (out)	Device control (in)	Device control (in)	Device control (in)
9	Green ground	Ground	Green ground	Ground
10	(not used)	(not used)	Serial interface (data) †	(not used)
11	Green*	(not used)	Green*	(not used)
12	(not used)	(not used)	Serial interface (clock) †	External switch (out) ✠
13	Red ground	Ground	Red ground	Ground
14	Blanking ground	Ground	Blanking ground	Ground
15	Red*	(not used)	Red*	(not used)
16	Blanking*	(not used)	Blanking*	(not used)
17	Video out ground	Video out ground	Video out ground	Video out ground
18	Video in ground	Video in ground	Video in ground	Video in ground
19	Video out	Video out	Video out §	Video out §
20	Video in	Video in	Video in	Video in
21	Shield/ground	Shield/ground	Shield/ground	Shield/ground

* (loop-through DECODER 1 → TV)
† (dealer use only)
§ (signal determined by **Decoder output** setting - see section 15)
✠ (signal determined by **Ext switch** setting (**Off** 0 V / **On** +10 V 20 mA max source current) - see section 15)

Video Amp Schematic & PCB Component Layout


SK690 8
SK690 7
SK690 6
SK690 5
SK690 4
SK690 3
SK690 2
SK690 1
TO
VIDEOCLAMP
PCB
PLE2
PL690 +12V
FLYING LEAD
TO VIDEOCLAMP
PCB
+12V
R690 10K
R692 82
TR691 2SA933
TR690 2SC1740
C690 10U 16V
R694 330
C691 22U
R691 10K
R693 330
0VA
0VA
8 SK691
7 SK691
6 SK691
5 SK691
4 SK691
3 SK691
2 SK691
1 SK691
TO
MAIN
PCB
PLE1

DRG.No.
3401-028E-1A
ISSUE

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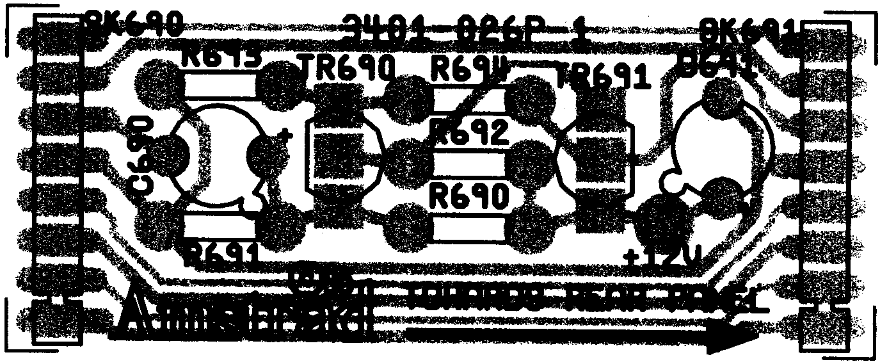
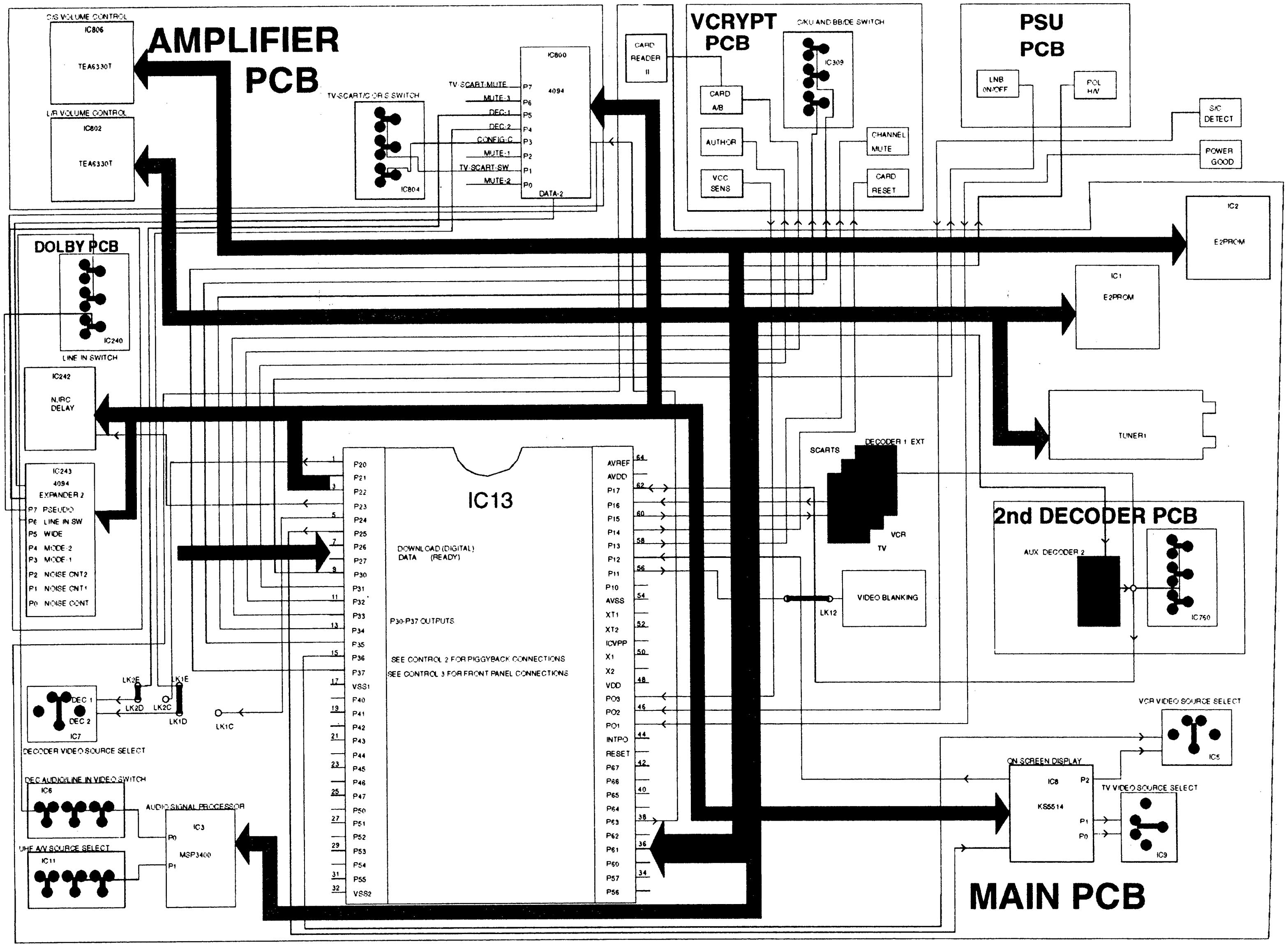
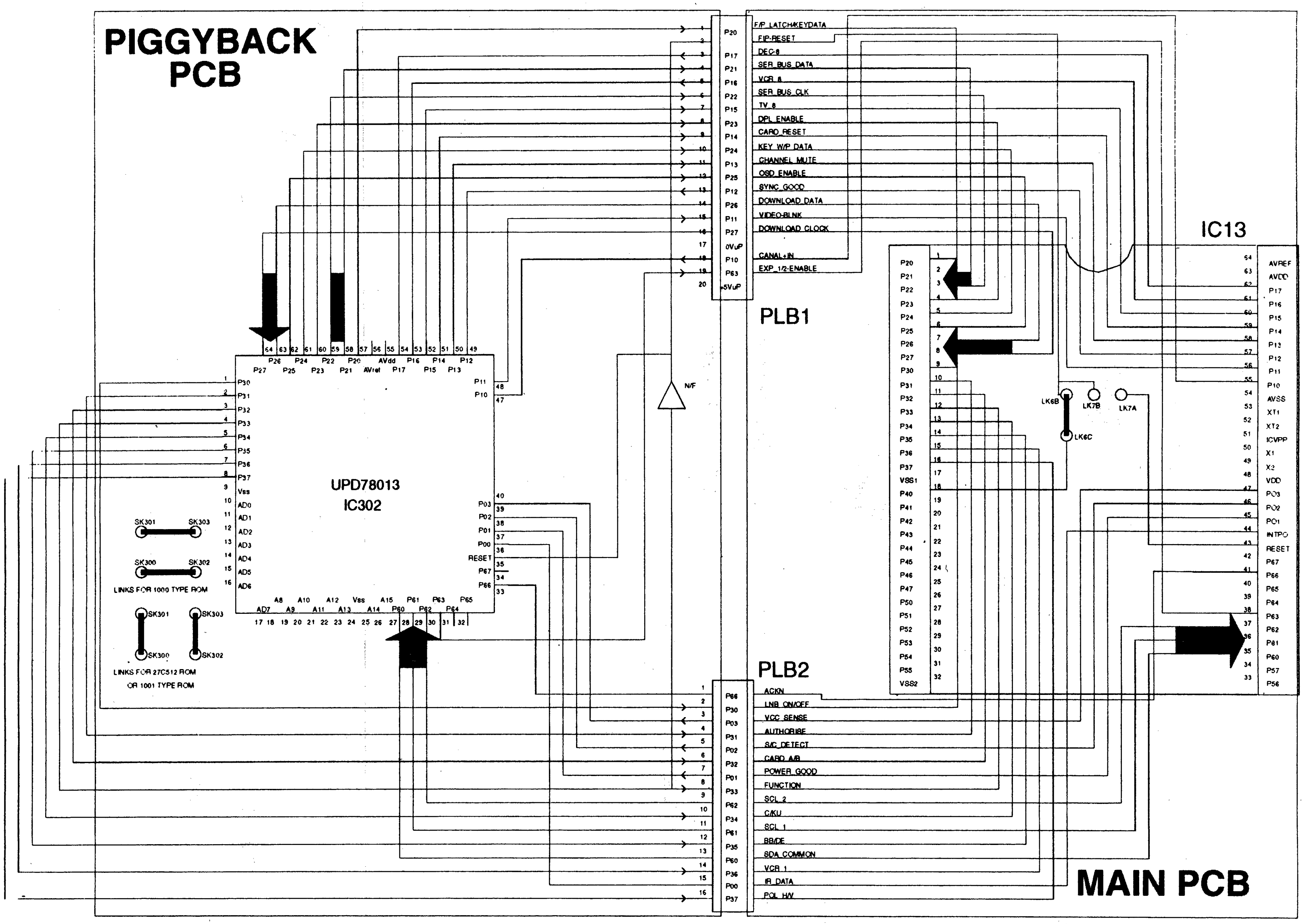
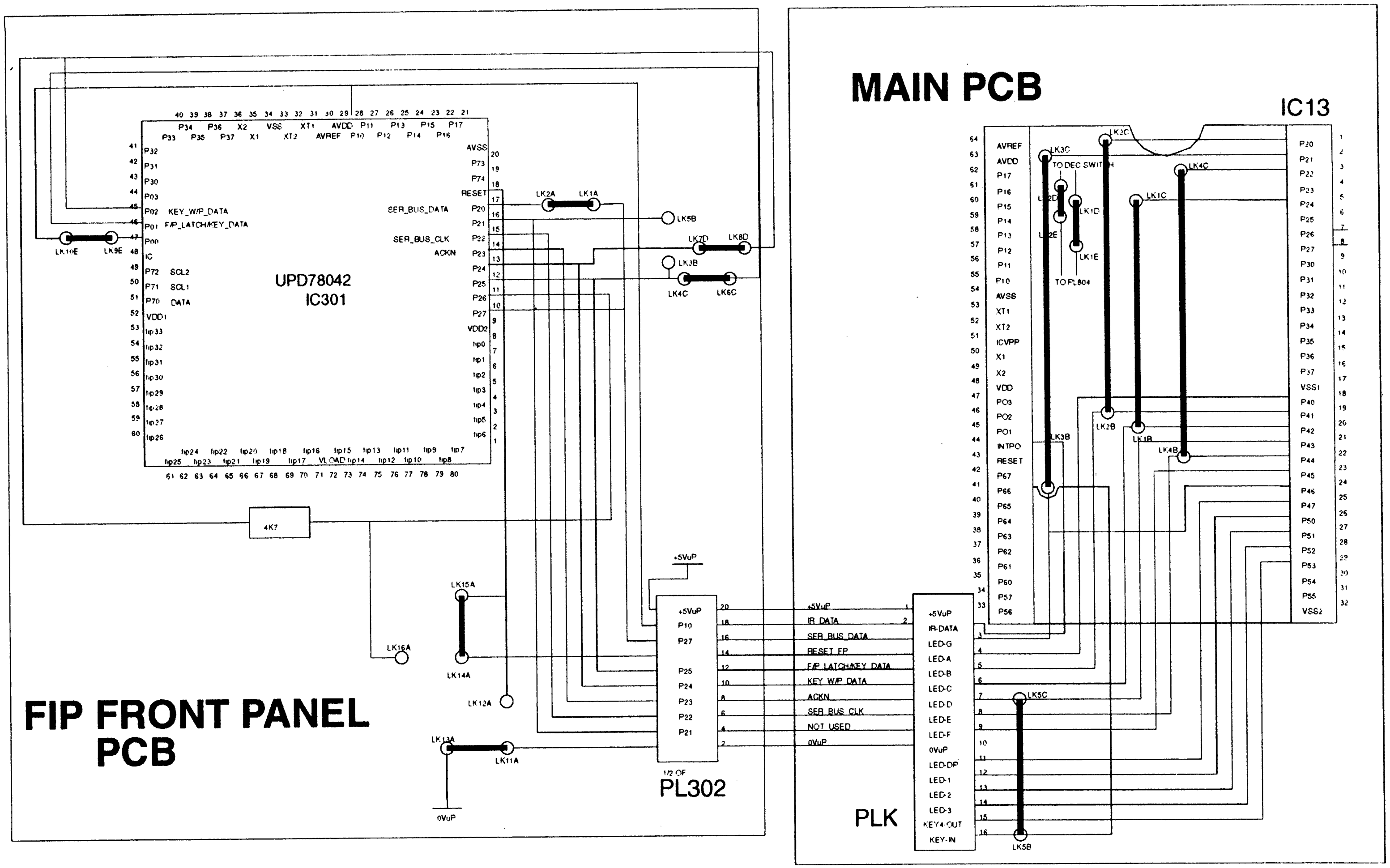

SK690
3401-026P-1
SK691
R693
TR690
R694
TR691
B691
C690
R692
R690
R691
+12V
TOWARDS REAR PANEL
Amstrad


AMPLIFIER PCB
C/S VOLUME CONTROL
IC806
TEA6330T
L/R VOLUME CONTROL
IC802
TEA6330T
TV SCART/C OR S SWITCH
IC804
IC800
4094
TV SCART MUTE
MUTE-3
DEC-1
DEC-2
CONFIG-C
MUTE-1
TV SCART SW
MUTE-2
P7
P6
P5
P4
P3
P2
P1
P0
DATA-2
CARD READER II
VCRYPT PCB
CARD A/B
AUTHOR
VCC SENS
C/KU AND BB/DE SWITCH
IC309
CHANNEL MUTE
CARD RESET
PSU PCB
LNB ON/OFF
POL H/V
S/C DETECT
POWER GOOD
IC2
E2PROM
IC1
E2PROM
TUNER1
DOLBY PCB
IC240
LINE IN SWITCH
IC242
NJRC DELAY
IC243
4094
EXPANDER 2
P7 PSEUDO
P6 LINE IN SW
P5 WIDE
P4 MODE 2
P3 MODE 1
P2 NOISE CNT2
P1 NOISE CNT1
P0 NOISE CONT
IC13
DOWNLOAD (DIGITAL) DATA (READY)
P30-P37 OUTPUTS
SEE CONTROL 2 FOR PIGGYBACK CONNECTIONS
SEE CONTROL 3 FOR FRONT PANEL CONNECTIONS
P20
P21
P22
P23
P24
P25
P26
P27
P30
P31
P32
P33
P34
P35
P36
P37
VSS1
P40
P41
P42
P43
P44
P45
P46
P47
P50
P51
P52
P53
P54
P55
VSS2
AVREF
AVDD
P17
P16
P15
P14
P13
P12
P11
P10
AVSS
XT1
XT2
ICVPP
X1
X2
VDD
PO3
PO2
PO1
INTPO
RESET
P67
P66
P65
P64
P63
P62
P61
P60
P57
P56
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
32
64
62
60
58
56
54
52
50
48
46
44
42
40
38
36
34
SCARTS
DECODER 1 EXT
VCR
TV
VIDEO BLANKING
LK12
2nd DECODER PCB
AUX DECODER 2
IC750
LK2E
LK1E
LK2D
LK2C
LK1D
LK1C
DEC 1
DEC 2
IC7
DECODER VIDEO SOURCE SELECT
DEC AUDIO/LINE IN VIDEO SWITCH
IC6
AUDIO SIGNAL PROCESSOR
IC3
MSP3400
P0
P1
UHF A/V SOURCE SELECT
IC11
VCR VIDEO SOURCE SELECT
IC5
ON SCREEN DISPLAY
IC8
KS5514
P2
P1
P0
TV VIDEO SOURCE SELECT
IC9
MAIN PCB

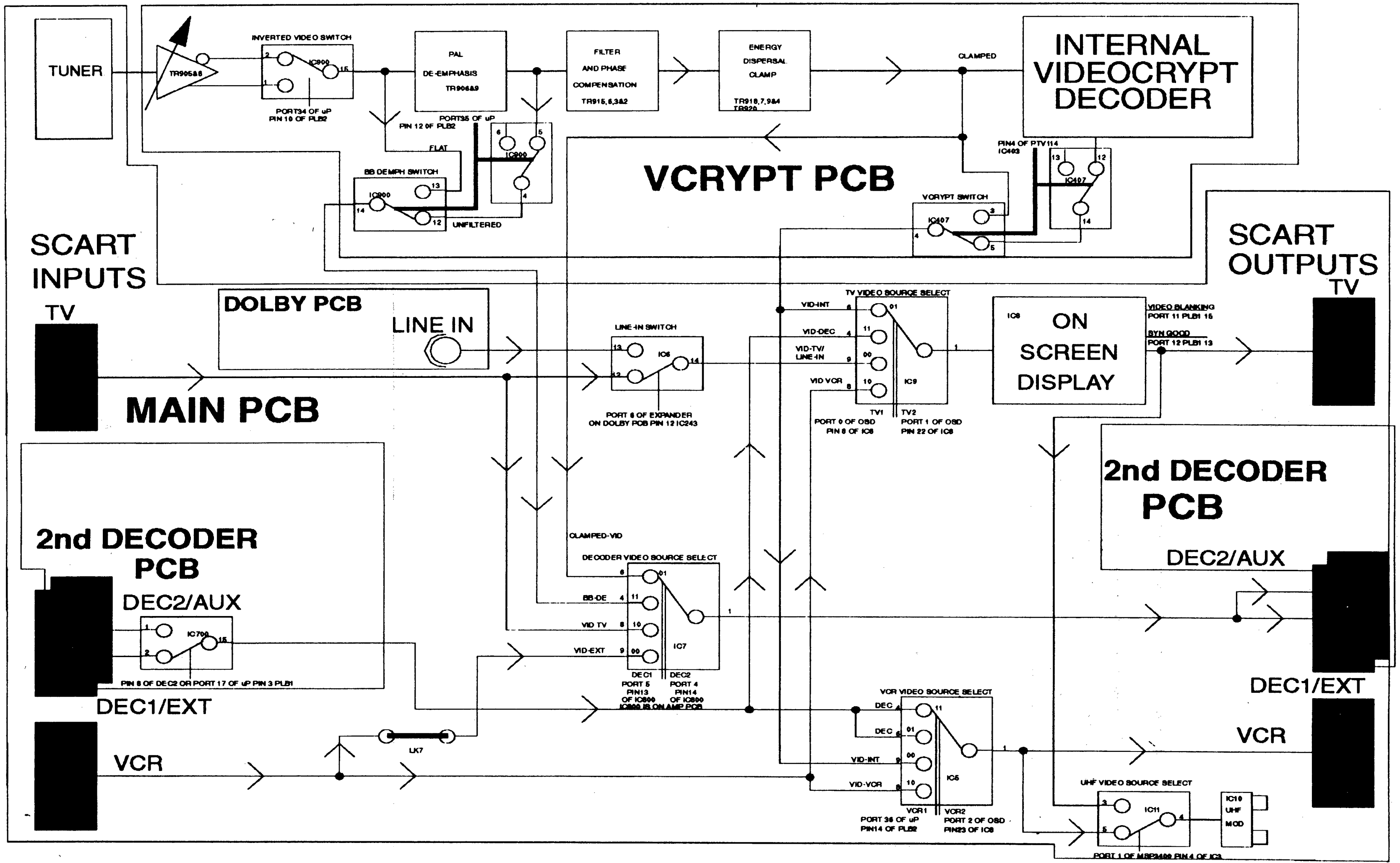
SRD 2000 CONTROL BLOCK DIAGRAM 1


PIGGYBACK PCB
MAIN PCB
UPD78013
IC302
IC13
PLB1
PLB2
N/F
LK6B
LK7B
LK7A
LK6C
SK301
SK303
SK300
SK302
LINKS FOR 1000 TYPE ROM
LINKS FOR 27C512 ROM OR 1001 TYPE ROM
F/P LATCH/KEYDATA
F/P-RESET
DEC-8
SER_BUS_DATA
VCR_8
SER_BUS_CLK
TV_8
DPL_ENABLE
CARD_RESET
KEY_W/P_DATA
CHANNEL_MUTE
OSD_ENABLE
SYNC_GOOD
DOWNLOAD_DATA
VIDEO-BLNK
DOWNLOAD_CLOCK
CANAL+IN
EXP_1/2-ENABLE
0VuP
+5VuP
ACKN
LNB_ON/OFF
VCC_SENSE
AUTHORISE
S/C_DETECT
CARD_A/B
POWER_GOOD
FUNCTION
SCL_2
C/KU
SCL_1
BB/DE
SDA_COMMON
VCR_1
IR_DATA
POL_H/V
AVREF
AVDD
AVSS
XT1
XT2
ICVPP
X1
X2
VDD
INTPO
RESET
VSS1
VSS2
AVdd
AVref
Vss

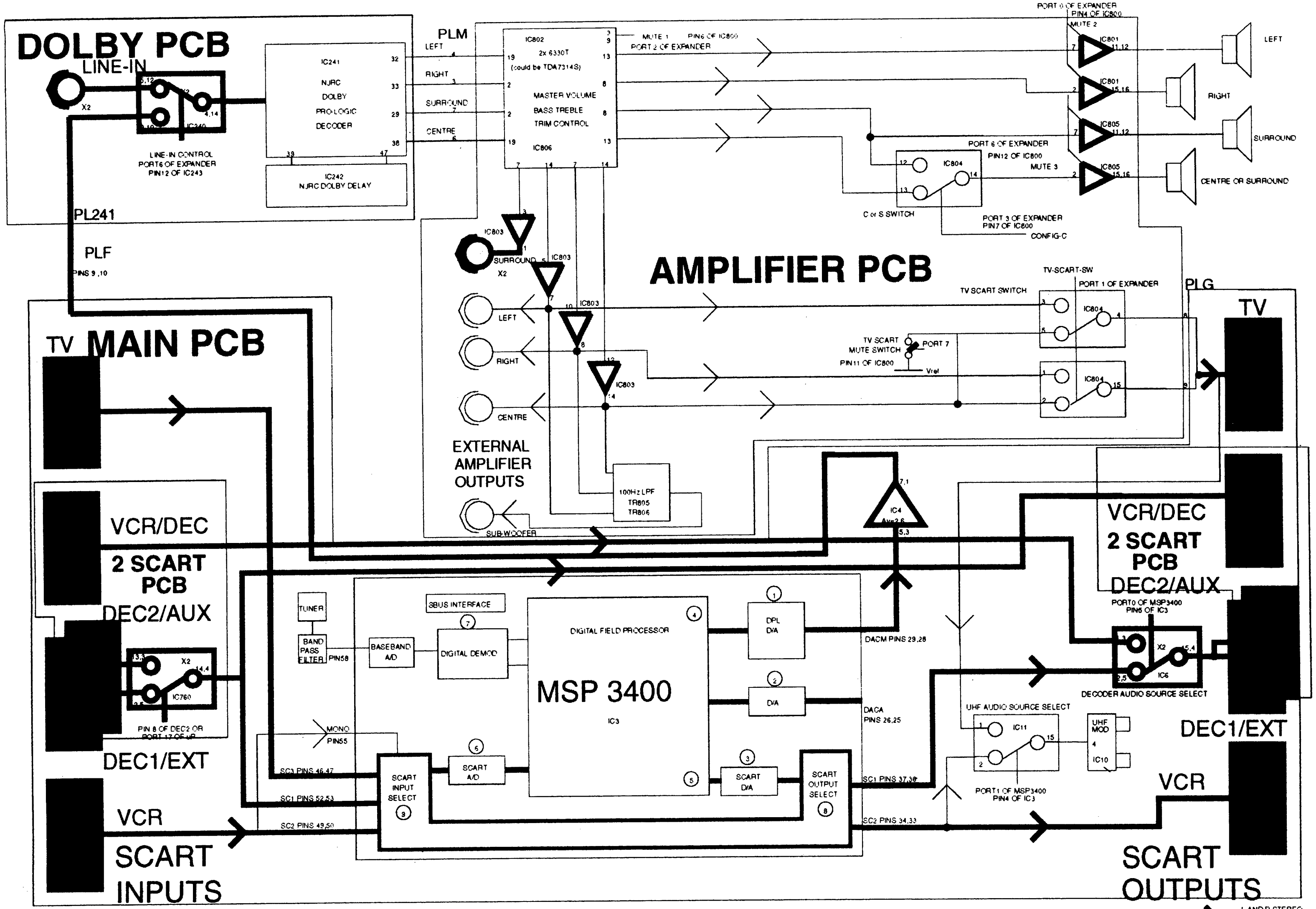
SRD 2000 CONTROL BLOCK DIAGRAM 2


MAIN PCB
IC13
FIP FRONT PANEL PCB
UPD78042
IC301
PL302
1/2 OF
PLK
4K7
+5VuP
0VuP
+5VuP
IR DATA
SER BUS DATA
RESET FP
F/P LATCH/KEY DATA
KEY W/P DATA
ACKN
SER BUS CLK
NOT USED
0VuP
+5VuP
IR-DATA
LED-G
LED-A
LED-B
LED-C
LED-D
LED-E
LED-F
0VuP
LED-DP
LED-1
LED-2
LED-3
KEY4-OUT
KEY-IN
P10
P27
P25
P24
P23
P22
P21
SER_BUS_DATA
SER_BUS_CLK
ACKN
KEY_W/P_DATA
F/P_LATCH/KEY_DATA
RESET
AVSS
TO DEC SWITCH
TO PL804
LK1A
LK2A
LK5B
LK7D
LK8D
LK3B
LK4C
LK6C
LK9E
LK10E
LK11A
LK12A
LK13A
LK14A
LK15A
LK16A
LK1B
LK1C
LK1D
LK1E
LK2B
LK2C
LK2D
LK2E
LK3B
LK3C
LK4B
LK4C
LK5B
LK5C

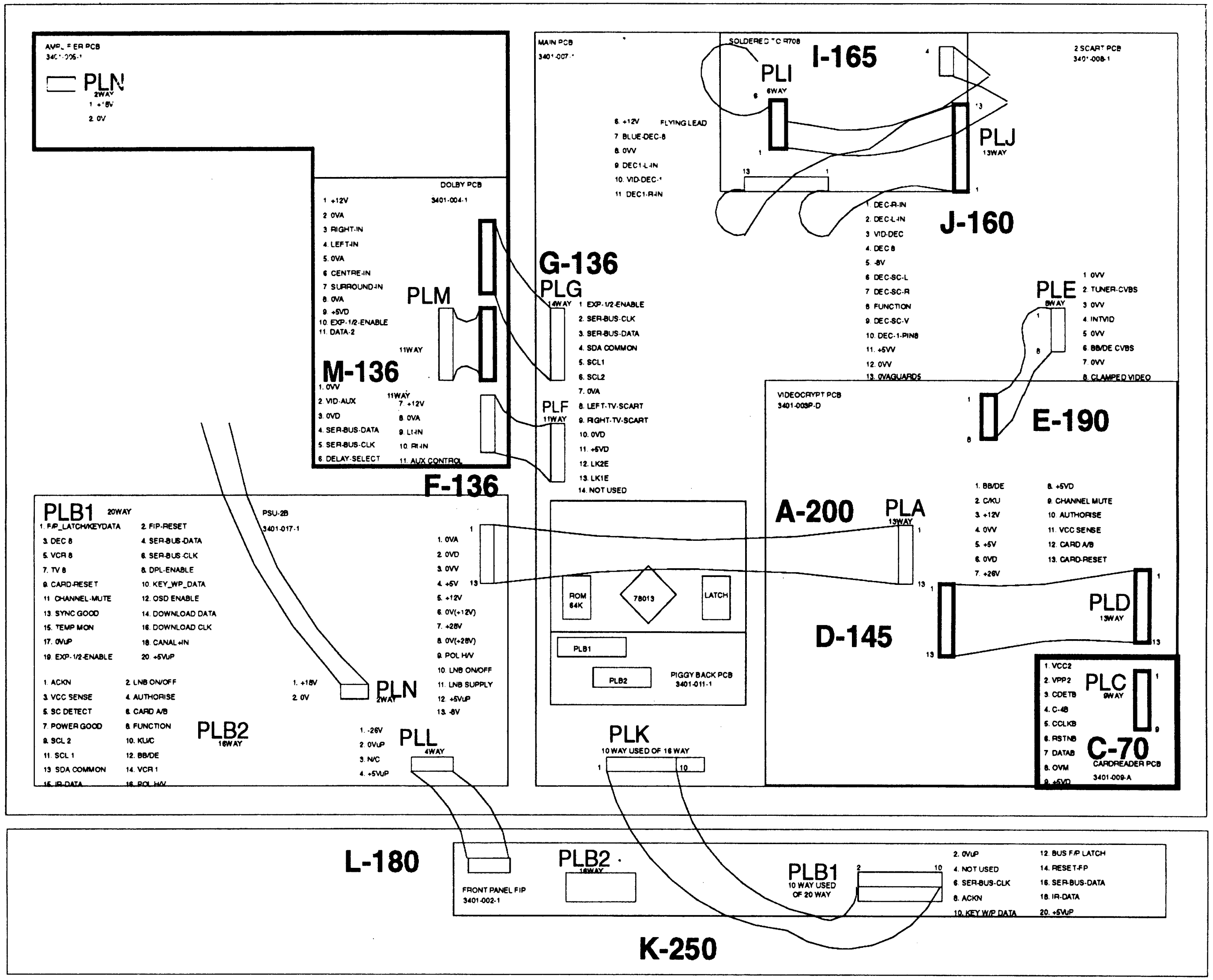
SRD 2000 CONTROL BLOCK DIAGRAM 3


TUNER
TR905&8
INVERTED VIDEO SWITCH
IC900
2
1
15
PORT34 OF uP
PIN 10 OF PLB2
PAL
DE-EMPHASIS
TR906&9
FILTER
AND PHASE
COMPENSATION
TR915,6,3&2
ENERGY
DISPERSAL
CLAMP
TR918,7,9&4
TR920
CLAMPED
INTERNAL
VIDEOCRYPT
DECODER
PORT35 OF uP
PIN 12 OF PLB2
FLAT
BB DEMPH SWITCH
IC900
13
14
12
UNFILTERED
IC900
6
5
4
VCRYPT PCB
PIN4 OF PTV114
IC403
IC407
13
12
14
VCRYPT SWITCH
IC407
3
4
5
SCART
INPUTS
TV
DOLBY PCB
LINE IN
MAIN PCB
LINE-IN SWITCH
IC6
13
12
14
PORT 6 OF EXPANDER
ON DOLBY PCB PIN 12 IC243
TV VIDEO SOURCE SELECT
VID-INT
VID-DEC
VID-TV/
LINE-IN
VID VCR
6
4
9
8
01
11
00
10
IC9
1
TV1
PORT 0 OF OSD
PIN 8 OF IC8
TV2
PORT 1 OF OSD
PIN 22 OF IC8
IC8
ON
SCREEN
DISPLAY
VIDEO BLANKING
PORT 11 PLB1 15
SYN GOOD
PORT 12 PLB1 13
SCART
OUTPUTS
TV
2nd DECODER
PCB
DEC2/AUX
DEC1/EXT
VCR
2nd DECODER
PCB
DEC2/AUX
IC700
1
2
15
PIN 8 OF DEC2 OR PORT 17 OF uP PIN 3 PLB1
DEC1/EXT
VCR
LK7
CLAMPED-VID
DECODER VIDEO SOURCE SELECT
CLAMPED-VID
BB-DE
VID TV
VID-EXT
6
4
8
9
01
11
10
00
IC7
1
DEC1
PORT 5
PIN13
OF IC800
DEC2
PORT 4
PIN14
OF IC800
IC800 IS ON AMP PCB
VCR VIDEO SOURCE SELECT
DEC
DEC
VID-INT
VID-VCR
4
6
9
8
11
01
00
10
IC5
1
VCR1
PORT 36 OF uP
PIN14 OF PLB2
VCR2
PORT 2 OF OSD
PIN23 OF IC8
UHF VIDEO SOURCE SELECT
IC11
3
5
4
IC10
UHF
MOD
PORT 1 OF MSP3400 PIN 4 OF IC3

SRD 2000 VIDEO BLOCK DIAGRAM


DOLBY PCB
LINE-IN
X2
IC240
LINE-IN CONTROL
PORT6 OF EXPANDER
PIN12 OF IC243
IC241
NJRC
DOLBY
PRO-LOGIC
DECODER
IC242
NJRC DOLBY DELAY
PL241
PLF
PINS 9,10
PLM
LEFT
RIGHT
SURROUND
CENTRE
IC802
2x 6330T
(could be TDA7314S)
MASTER VOLUME
BASS TREBLE
TRIM CONTROL
IC806
MUTE 1
PIN6 OF IC800
PORT 2 OF EXPANDER
PORT 0 OF EXPANDER
PIN4 OF IC800
MUTE 2
IC801
IC805
LEFT
RIGHT
SURROUND
CENTRE OR SURROUND
PORT 6 OF EXPANDER
PIN12 OF IC800
MUTE 3
IC804
C or S SWITCH
PORT 3 OF EXPANDER
PIN7 OF IC800
CONFIG-C
AMPLIFIER PCB
TV-SCART-SW
PORT 1 OF EXPANDER
TV SCART SWITCH
TV SCART
MUTE SWITCH
PIN11 OF IC800
PORT 7
Vref
PLG
TV
IC803
SURROUND
X2
LEFT
RIGHT
CENTRE
EXTERNAL
AMPLIFIER
OUTPUTS
SUB-WOOFER
100Hz LPF
TR805
TR806
IC4
Av=2.6
TV
MAIN PCB
VCR/DEC
2 SCART
PCB
DEC2/AUX
IC760
PIN 8 OF DEC2 OR
PORT 17 OF uP
DEC1/EXT
VCR
SCART
INPUTS
TUNER
BAND
PASS
FILTER
PIN58
MONO
PIN55
SBUS INTERFACE
BASEBAND
A/D
DIGITAL DEMOD
DIGITAL FIELD PROCESSOR
MSP 3400
IC3
DPL
D/A
D/A
SCART
A/D
SCART
D/A
SCART
INPUT
SELECT
SCART
OUTPUT
SELECT
SC3 PINS 46,47
SC1 PINS 52,53
SC2 PINS 49,50
DACM PINS 29,28
DACA
PINS 26,25
SC1 PINS 37,38
SC2 PINS 34,33
PORT0 OF MSP3400
PINS OF IC3
IC6
DECODER AUDIO SOURCE SELECT
UHF AUDIO SOURCE SELECT
IC11
UHF
MOD
IC10
PORT1 OF MSP3400
PIN4 OF IC3
VCR/DEC
2 SCART
PCB
DEC2/AUX
DEC1/EXT
VCR
SCART
OUTPUTS
L AND R STEREO
LEFT PIN NUMBER IS ALWAYS FIRST
L+R MONO

SRD 2000 AUDIO BLOCK DIAGRAM


AMPLIFIER PCB
3401-005-1
PLN
2WAY
1 +18V
2 0V
DOLBY PCB
3401-004-1
1 +12V
2 0VA
3 RIGHT-IN
4 LEFT-IN
5 0VA
6 CENTRE-IN
7 SURROUND-IN
8 0VA
9 +5VD
10 EXP-1/2-ENABLE
11 DATA-2
PLM
11WAY
M-136
1. 0VV
2. VID-AUX
3. 0VD
4. SER-BUS-DATA
5. SER-BUS-CLK
6. DELAY-SELECT
11WAY
7. +12V
8. 0VA
9. Lt-IN
10. Rt-IN
11. AUX CONTROL
F-136
PLB1
20WAY
1. F/P_LATCH/KEYDATA
2. FIP-RESET
3. DEC 8
4. SER-BUS-DATA
5. VCR 8
6. SER-BUS-CLK
7. TV 8
8. DPL-ENABLE
9. CARD-RESET
10. KEY_WP_DATA
11. CHANNEL-MUTE
12. OSD ENABLE
13. SYNC GOOD
14. DOWNLOAD DATA
15. TEMP MON
16. DOWNLOAD CLK
17. 0VuP
18. CANAL+IN
19. EXP-1/2-ENABLE
20. +5VuP
1. ACKN
2. LNB ON/OFF
3. VCC SENSE
4. AUTHORISE
5. SC DETECT
6. CARD A/B
7. POWER GOOD
8. FUNCTION
9. SCL 2
10. KU/C
11. SCL 1
12. BB/DE
13. SDA COMMON
14. VCR 1
15. IR-DATA
16. POL H/V
PLB2
16WAY
PSU-2B
3401-017-1
1. +18V
2. 0V
PLN
2WAY
1. 0VA
2. 0VD
3. 0VV
4. +5V
5. +12V
6. 0V(+12V)
7. +28V
8. 0V(+28V)
9. POL H/V
10. LNB ON/OFF
11. LNB SUPPLY
12. +5VuP
13. -8V
1. -26V
2. 0VuP
3. N/C
4. +5VuP
PLL
4WAY
MAIN PCB
3401-007-1
6. +12V
FLYING LEAD
7 BLUE-DEC-8
8. 0VV
9. DEC1-L-IN
10. VID-DEC-1
11 DEC1-R-IN
SOLDERED TO R708
PLI
6WAY
I-165
PLJ
13WAY
1. DEC-R-IN
2. DEC-L-IN
3 VID-DEC
4. DEC 8
5. -8V
6 DEC-SC-L
7 DEC-SC-R
8 FUNCTION
9. DEC-SC-V
10. DEC-1-PIN8
11. +5VV
12. 0VV
13. 0VAGUARDS
J-160
2 SCART PCB
3401-008-1
G-136
PLG
14WAY
1 EXP-1/2-ENABLE
2. SER-BUS-CLK
3. SER-BUS-DATA
4. SDA COMMON
5. SCL1
6. SCL2
7. 0VA
8. LEFT-TV-SCART
9. RIGHT-TV-SCART
10. 0VD
11. +5VD
12. LK2E
13. LK1E
14. NOT USED
PLF
11WAY
PLE
8WAY
1 0VV
2. TUNER-CVBS
3 0VV
4. INTVID
5 0VV
6. BB/DE CVBS
7. 0VV
8. CLAMPED VIDEO
E-190
VIDEOCRYPT PCB
3401-003P-D
A-200
PLA
13WAY
1. BB/DE
2. C/KU
3. +12V
4. 0VV
5. +5V
6. 0VD
7. +26V
8. +5VD
9. CHANNEL MUTE
10. AUTHORISE
11. VCC SENSE
12. CARD A/B
13. CARD-RESET
D-145
PLD
13WAY
ROM
64K
78013
LATCH
PLB1
PLB2
PIGGY BACK PCB
3401-011-1
PLK
10 WAY USED OF 16 WAY
1. VCC2
2. VPP2
3. CDETB
4. C-4B
5. CCLKB
6. RSTNB
7 DATAB
8. OVM
9. +5VD
PLC
9WAY
C-70
CARDREADER PCB
3401-009-A
L-180
FRONT PANEL FIP
3401-002-1
PLB2
16WAY
PLB1
10 WAY USED OF 20 WAY
2. 0VuP
4. NOT USED
6. SER-BUS-CLK
8. ACKN
10. KEY W/P DATA
12. BUS F/P LATCH
14. RESET-FP
16. SER-BUS-DATA
18. IR-DATA
20. +5VuP
K-250

SRD 2000 PCB INTERCONNECTION BLOCK DIAGRAM

PSU Schematic Diagram

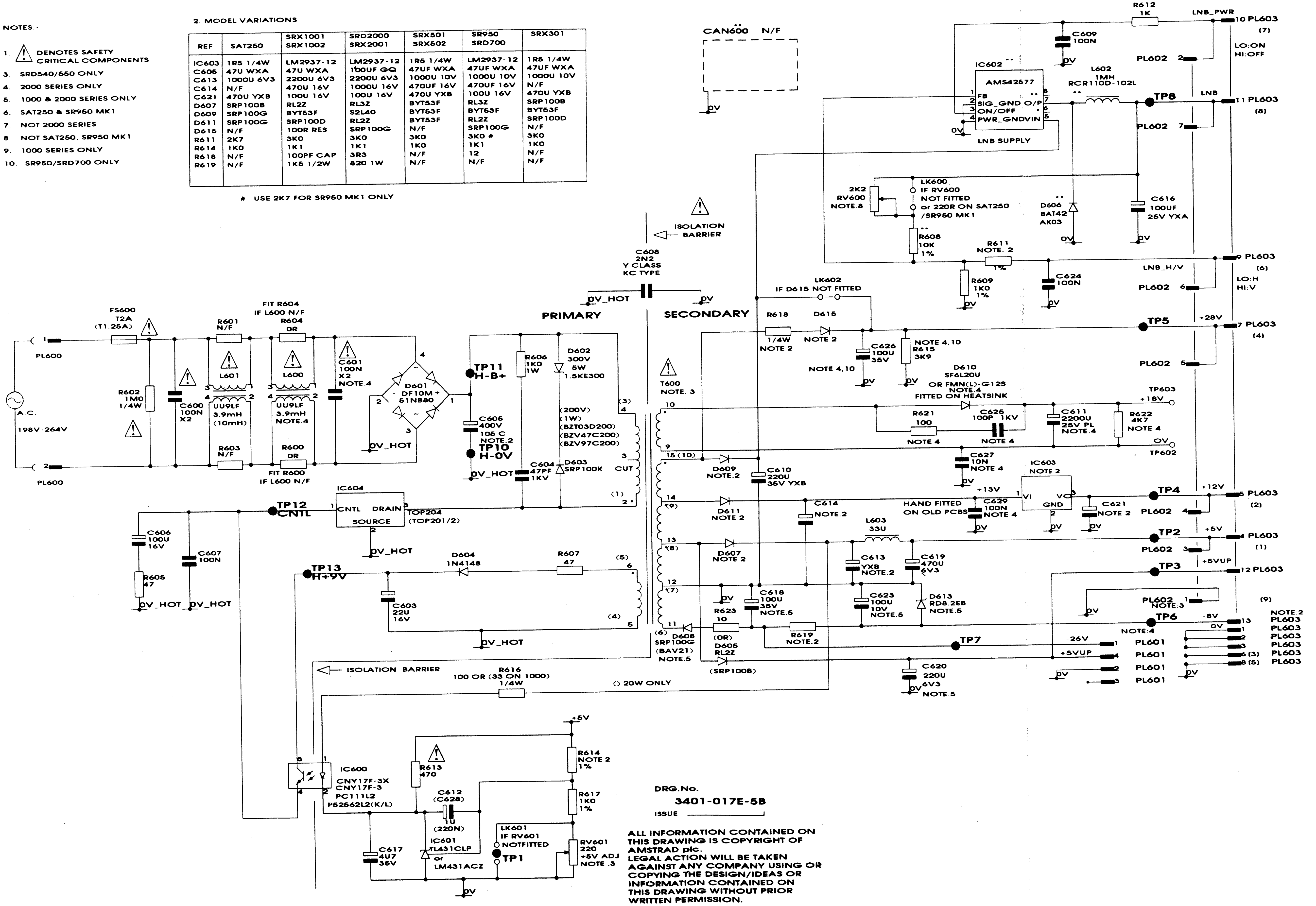
NOTES:-

1. ⚠ DENOTES SAFETY CRITICAL COMPONENTS
3. SRD540/550 ONLY
4. 2000 SERIES ONLY
5. 1000 & 2000 SERIES ONLY
6. SAT250 & SR950 MK1
7. NOT 2000 SERIES
8. NOT SAT250, SR950 MK1
9. 1000 SERIES ONLY
10. SR950/SRD700 ONLY

2. MODEL VARIATIONS

REF	SAT250	SRX1001 SRX1002	SRD2000 SRX2001	SRX501 SRX502	SR950 SRD700	SRX301
IC603	1R5 1/4W	LM2937-12	LM2937-12	1R5 1/4W	LM2937-12	1R5 1/4W
C605	47U WXA	47U WXA	100UF GQ	47UF WXA	47UF WXA	47UF WXA
C613	1000U 6V3	2200U 6V3	2200U 6V3	1000U 10V	1000U 10V	1000U 10V
C614	N/F	470U 16V	1000U 16V	470UF 16V	470UF 16V	N/F
C621	470U YXB	100U 16V	100U 16V	470U YXB	100U 16V	470U YXB
D607	SRP100B	RL2Z	RL3Z	BYT53F	RL3Z	SRP100B
D609	SRP100G	BYT53F	S2L40	BYT53F	BYT53F	BYT53F
D611	SRP100G	SRP100D	RL2Z	BYT53F	RL2Z	SRP100D
D615	N/F	100R RES	SRP100G	N/F	SRP100G	N/F
R611	2K7	3K0	3K0	3K0	3K0 #	3K0
R614	1K0	1K1	1K1	1K0	1K1	1K0
R618	N/F	100PF CAP	3R3	N/F	12	N/F
R619	N/F	1K5 1/2W	820 1W	N/F	N/F	N/F

USE 2K7 FOR SR950 MK1 ONLY


CAN600 N/F
0V
R612
1K
LNB_PWR
10 PL603
(7)
LO:ON
HI:OFF
C609
100N
IC602
AMS42577
FB
SIG_GND O/P
ON/OFF
PWR_GNDVIN
LNB SUPPLY
L602
1MH
RCR110D-102L
TP8
PL602 2
PL602 7
LNB
11 PL603
(8)
LK600
IF RV600
NOT FITTED
or 220R ON SAT250
/SR950 MK1
2K2
RV600
NOTE.8
R608
10K
1%
D606
BAT42
AK03
C616
100UF
25V YXA
ISOLATION BARRIER
R611
NOTE. 2
1%
R609
1K0
1%
C624
100N
LNB_H/V
9 PL603
(6)
LO:H
HI:V
PL602 6
C608
2N2
Y CLASS
KC TYPE
0V_HOT
PRIMARY
SECONDARY
LK602
IF D615 NOT FITTED
R618
1/4W
NOTE 2
D615
NOTE 2
C626
100U
35V
NOTE 4,10
R615
3K9
TP5
+28V
7 PL603
(4)
PL602 5
FS600
T2A
(T1.25A)
PL600
A.C.
198V-264V
R602
1M0
1/4W
C600
100N
X2
R601
N/F
L601
UU9LF
3.9mH
(10mH)
R603
N/F
FIT R604
IF L600 N/F
R604
0R
L600
UU9LF
3.9mH
NOTE.4
R600
0R
FIT R600
IF L600 N/F
C601
100N
X2
NOTE.4
D601
DF10M
51NB80
TP11
H-B+
C605
400V
105 C
NOTE.2
TP10
H-0V
R606
1K0
1W
D602
300V
5W
1.5KE300
(200V)
(1W)
(BZT03D200)
(BZV47C200)
(BZV97C200)
C604
47PF
1KV
D603
SRP100K
CUT
T600
NOTE. 3
D610
SF6L20U
OR FMN(L)-G12S
NOTE.4
FITTED ON HEATSINK
TP603
+18V
R621
100
NOTE 4
C625
100P 1KV
NOTE 4
C611
2200U
25V PL
NOTE.4
R622
4K7
NOTE 4
0V
TP602
C627
10N
NOTE 4
D609
NOTE.2
C610
220U
35V YXB
IC603
NOTE 2
VI
VO
GND
+13V
HAND FITTED
ON OLD PCBS
C629
100N
NOTE 4
C621
NOTE 2
TP4
+12V
5 PL603
(2)
PL602 4
D611
NOTE 2
C614
NOTE.2
L603
33U
TP2
+5V
4 PL603
(1)
PL602 3
D607
NOTE 2
C613
YXB
NOTE.2
C619
470U
6V3
TP3
+5VUP
12 PL603
C618
100U
35V
NOTE.5
C623
100U
10V
NOTE.5
D613
RD8.2EB
NOTE.5
PL602
NOTE:3
(9)
R623
10
(OR)
D605
RL2Z
(SRP100B)
D608
SRP100G
(BAV21)
NOTE.5
R619
NOTE.2
TP6
-8V
NOTE:4
TP7
-26V
+5VUP
PL601
C620
220U
6V3
NOTE.5
NOTE:2
PL603
IC604
CNTL
DRAIN
SOURCE
TOP204
(TOP201/2)
TP12
CNTL
C606
100U
16V
R605
47
C607
100N
TP13
H+9V
D604
1N4148
R607
47
C603
22U
16V
R616
100 OR (33 ON 1000)
1/4W
() 20W ONLY
+5V
IC600
CNY17F-3X
CNY17F-3
PC111L2
P52562L2(K/L)
R613
470
C612
(C628)
1U
(220N)
IC601
TL431CLP
or
LM431ACZ
C617
4U7
35V
LK601
IF RV601
NOTFITTED
TP1
R614
NOTE 2
1%
R617
1K0
1%
RV601
220
+5V ADJ
NOTE .3

DRG.No.
3401-017E-5B
ISSUE

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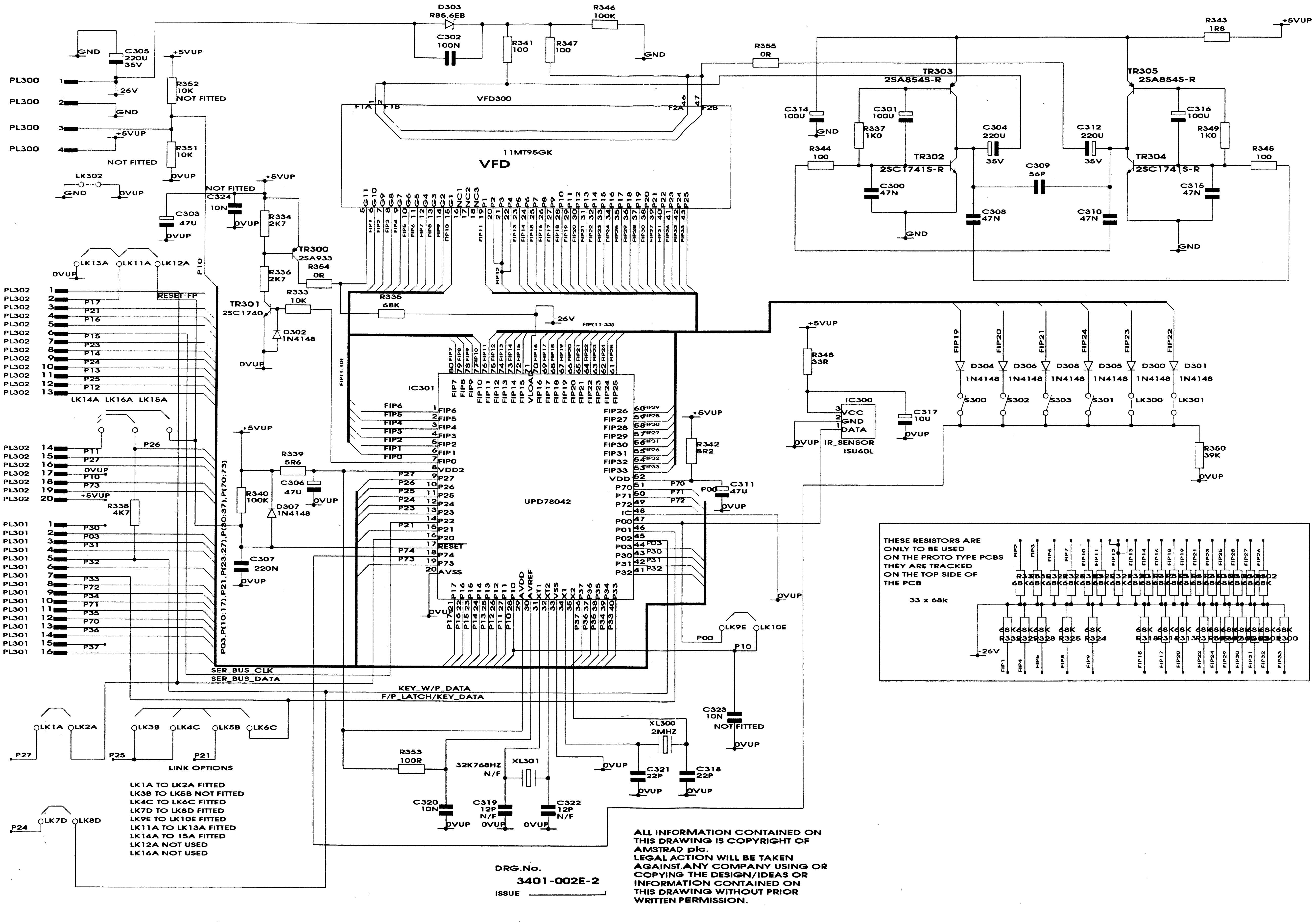
Front PCB Schematic Diagram


PL300
PL301
PL302
C305 220U 35V
R352 10K NOT FITTED
R351 10K NOT FITTED
LK302
C303 47U
C324 10N NOT FITTED
R334 2K7
TR300 2SA933
R354 0R
R336 2K7
TR301 2SC1740
R333 10K
D302 1N4148
R335 68K
D303 RB5,6EB
C302 100N
R341 100
R347 100
R346 100K
VFD300
11MT95GK
VFD
R355 0R
R343 1R8
TR303 2SA854S-R
TR305 2SA854S-R
C314 100U
C301 100U
C316 100U
R337 1K0
R349 1K0
R344 100
R345 100
TR302 2SC1741S-R
TR304 2SC1741S-R
C304 220U 35V
C312 220U 35V
C309 56P
C300 47N
C315 47N
C308 47N
C310 47N
IC301
UPD78042
R339 5R6
C306 47U
R340 100K
D307 1N4148
C307 220N
R338 4K7
R348 33R
IC300
IR_SENSOR ISU60L
C317 10U
R342 8R2
C311 47U
D304 D306 D308 D305 D300 D301
1N4148
S300 S302 S303 S301 LK300 LK301
R350 39K
C323 10N NOT FITTED
XL300 2MHZ
C321 22P
C318 22P
R353 100R
C320 10N
32K768HZ N/F
XL301
C319 12P N/F
C322 12P N/F
SER_BUS_CLK
SER_BUS_DATA
KEY_W/P_DATA
F/P_LATCH/KEY_DATA
RESET-FP
LK1A LK2A LK3B LK4C LK5B LK6C LK7D LK8D LK9E LK10E
LK11A LK12A LK13A LK14A LK15A LK16A
+5VUP
0VUP
GND
-26V
THESE RESISTORS ARE ONLY TO BE USED ON THE PROTO TYPE PCBS THEY ARE TRACKED ON THE TOP SIDE OF THE PCB
33 x 68k

LINK OPTIONS

LK1A TO LK2A FITTED
LK3B TO LK5B NOT FITTED
LK4C TO LK6C FITTED
LK7D TO LK8D FITTED
LK9E TO LK10E FITTED
LK11A TO LK13A FITTED
LK14A TO 15A FITTED
LK12A NOT USED
LK16A NOT USED

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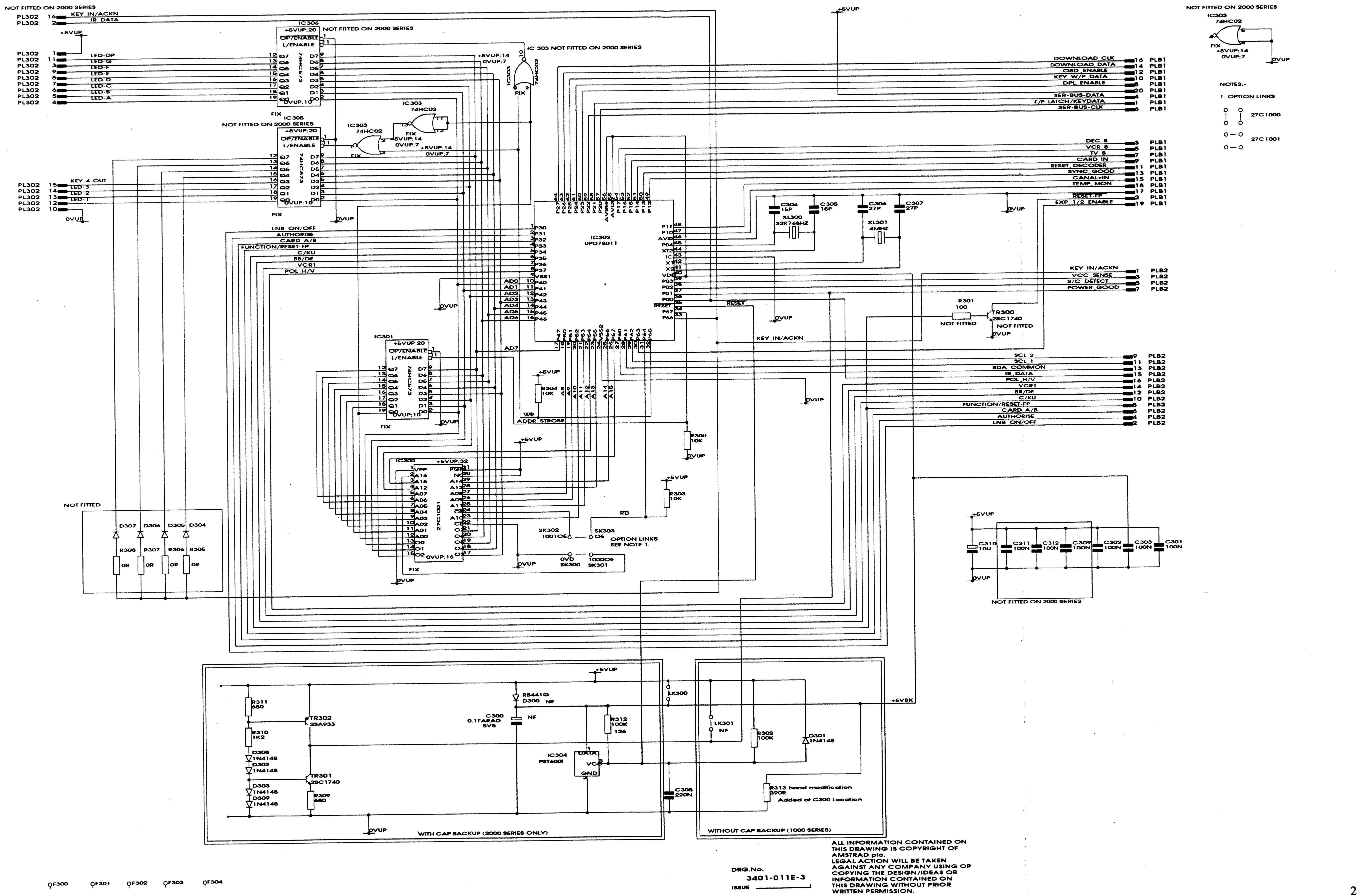
Piggy Back PCB Schematic Diagram


NOT FITTED ON 2000 SERIES
PL302
KEY IN/ACKN
IR DATA
+5VUP
LED-DP
LED-G
LED-F
LED-E
LED-D
LED-C
LED-B
LED-A
IC306
74HC673
OP/ENABLE
L/ENABLE
FIX
IC305
IC303
74HC02
IC 303 NOT FITTED ON 2000 SERIES
KEY-4-OUT
LED-3
LED-2
LED-1
0VUP
LNB ON/OFF
AUTHORISE
CARD A/B
FUNCTION/RESET-FP
C/KU
BB/DE
VCR1
POL H/V
IC302
UPD78011
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7
IC301
WR
ADDR STROBE
R304 10K
R300 10K
R303 10K
RD
IC300
27C1001
SK302 1001OE
SK303 OE
OPTION LINKS SEE NOTE 1.
0VD SK300
1000OE SK301
NOT FITTED
D307
D306
D305
D304
R308
R307
R306
R305
0R
DOWNLOAD CLK
DOWNLOAD DATA
OSD ENABLE
KEY W/P DATA
DPL ENABLE
SER-BUS-DATA
F/P LATCH/KEYDATA
SER-BUS-CLK
PLB1
DEC 5
VCR 5
TV 5
CARD IN
RESET DECODER
SYNC GOOD
CANAL+IN
TEMP MON
RESET-FP
EXP 1/2 ENABLE
C304 16P
C305 16P
XL300 32K768HZ
C306 27P
C307 27P
XL301 4MHZ
KEY IN/ACKN
VCC SENSE
S/C DETECT
POWER GOOD
PLB2
R301 100
NOT FITTED
TR300 2SC1740
RESET
KEY IN/ACKN
SCL 2
SCL 1
SDA COMMON
IR DATA
POL H/V
VCR1
BB/DE
C/KU
FUNCTION/RESET-FP
CARD A/B
AUTHORISE
LNB ON/OFF
C310 10U
C311 100N
C312 100N
C309 100N
C302 100N
C303 100N
C301 100N
NOT FITTED ON 2000 SERIES
NOTES:-
1. OPTION LINKS
27C1000
27C1001
R311 680
R310 1K2
D308 1N4148
D302 1N4148
D303 1N4148
D309 1N4148
TR302 2SA933
TR301 2SC1740
R309 680
C300 0.1FARAD 5V5
NF
R8441Ω D300 NF
R312 100K 126
IC304 PST600I
DATA
VC
GND
C308 220N
WITH CAP BACKUP (2000 SERIES ONLY)
LK300
LK301 NF
R302 100K
D301 1N4148
+5VBK
R313 hand modification 390R
Added at C300 Location
WITHOUT CAP BACKUP (1000 SERIES)
F300
F301
F302
F303
F304

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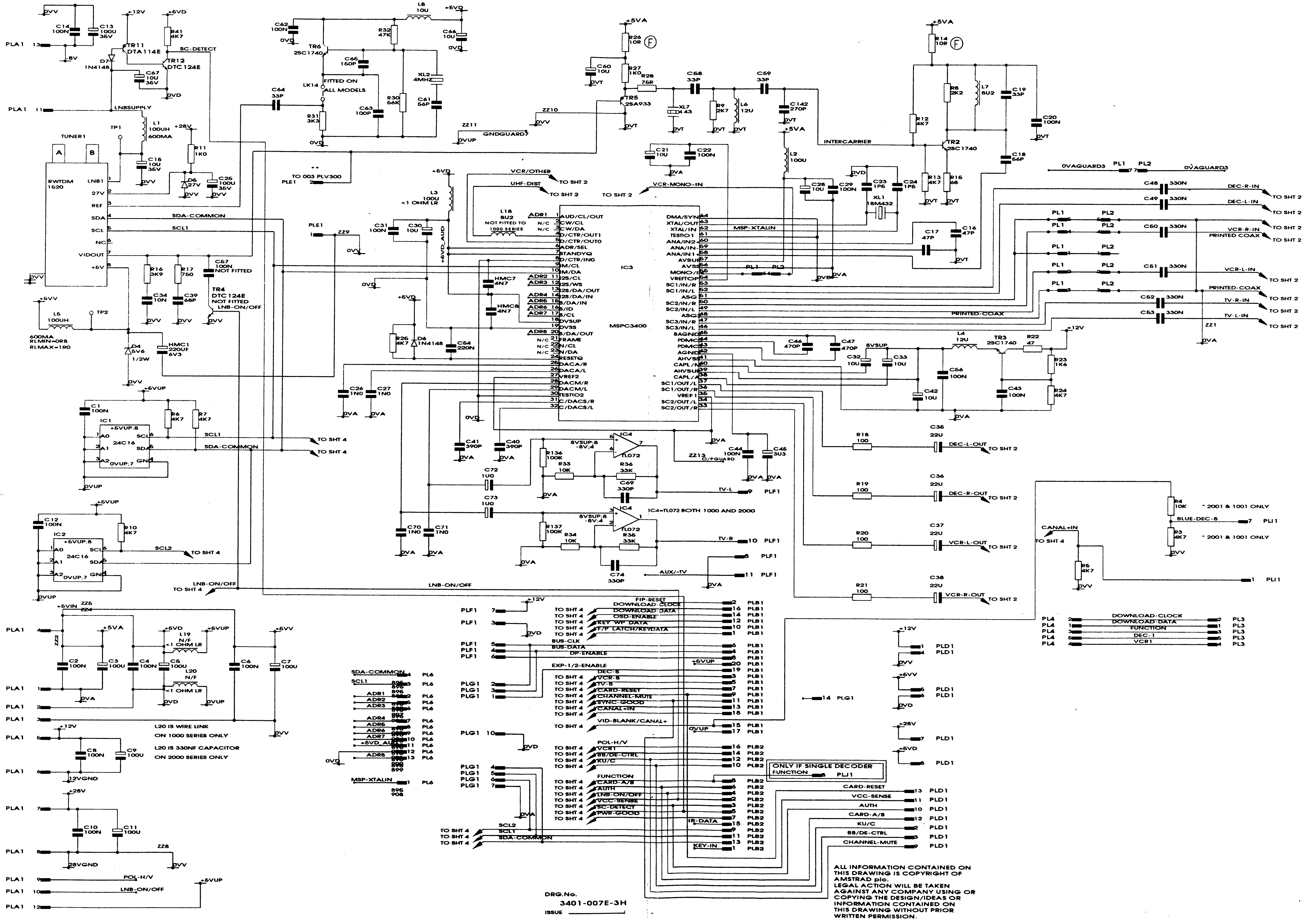
Main PCB Schematic Diagram 1/3


TUNER1
RWTDM 1620
LNB1
27V
REF
SDA
SCL
NC
VIDOUT
+5V
SDA-COMMON
SCL1
SC-DETECT
LNBSUPPLY
TR11 DTA114E
TR12 DTC124E
D7 1N4148
L1 100UH 600MA
TP1
TP2
L5 100UH
600MA RLMIN=0R8 RLMAX=1R0
D4 5V6 1/2W
HMC1 220UF 6V3
R16 3K9
R17 750
C57 100N NOT FITTED
TR4 DTC124E NOT FITTED
LNB-ON/OFF
IC1 24C16
IC2 24C16
SCL2
TO SHT 4
TR6 2SC1740
XL2 4MHZ
FITTED ON ALL MODELS
LK14
L8 10U
ZZ11
GNDGUARD7
ZZ10
TO 003 PLV300
PLE1
ZZ9
L3 100U <1 OHM LR
L18 8U2 NOT FITTED TO 1000 SERIES
VCR/OTHER
UHF-DIST
TO SHT 2
VCR-MONO-IN
IC3
MSPC3400
MSP-XTALIN
TR5 2SA933
XL7 D 43
XL1 18M432
INTERCARRIER
TR2 2SC1740
L7 8U2
L2 100U
L4 12U
TR3 2SC1740
0VAGUARD3
PL1
PL2
DEC-R-IN
DEC-L-IN
VCR-R-IN
PRINTED COAX
VCR-L-IN
PRINTED-COAX
TV-R-IN
TV-L-IN
ZZ1
IC4 TL072
IC4=TL072 BOTH 1000 AND 2000
TV-L
TV-R
AUX/-TV
PLF1
DEC-L-OUT
DEC-R-OUT
VCR-L-OUT
VCR-R-OUT
ZZ13 O/PGUARD
BLUE-DEC-B
CANAL+IN
* 2001 & 1001 ONLY
PLI1
DOWNLOAD-CLOCK
DOWNLOAD-DATA
FUNCTION
DEC-1
VCR1
PL3
PL4
FIP-RESET
OSD-ENABLE
KEY WP DATA
F/P LATCH/KEYDATA
BUS-CLK
BUS-DATA
DP-ENABLE
EXP-1/2-ENABLE
DEC-B
VCR-B
TV-B
CARD-RESET
CHANNEL-MUTE
SYNC-GOOD
CANAL-IN
VID-BLANK/CANAL+
POL-H/V
VCRT
BB/DE-CTRL
KU/C
CARD-A/B
AUTH
VCC-SENSE
SC-DETECT
PWR-GOOD
IR-DATA
KEY-IN
PLB1
PLB2
PLG1
PLD1
PL6
ONLY IF SINGLE DECODER FUNCTION
L19 N/F <1 OHM LR
L20 N/F <1 OHM LR
L20 IS WIRE LINK ON 1000 SERIES ONLY
L20 IS 330NF CAPACITOR ON 2000 SERIES ONLY
12VGND
28VGND
PLA1
ZZ5
ZZ4
ZZ8
ADR1
ADR2
ADR3
ADR4
ADR5
ADR6
ADR7
ADR8
+5VD_AUD

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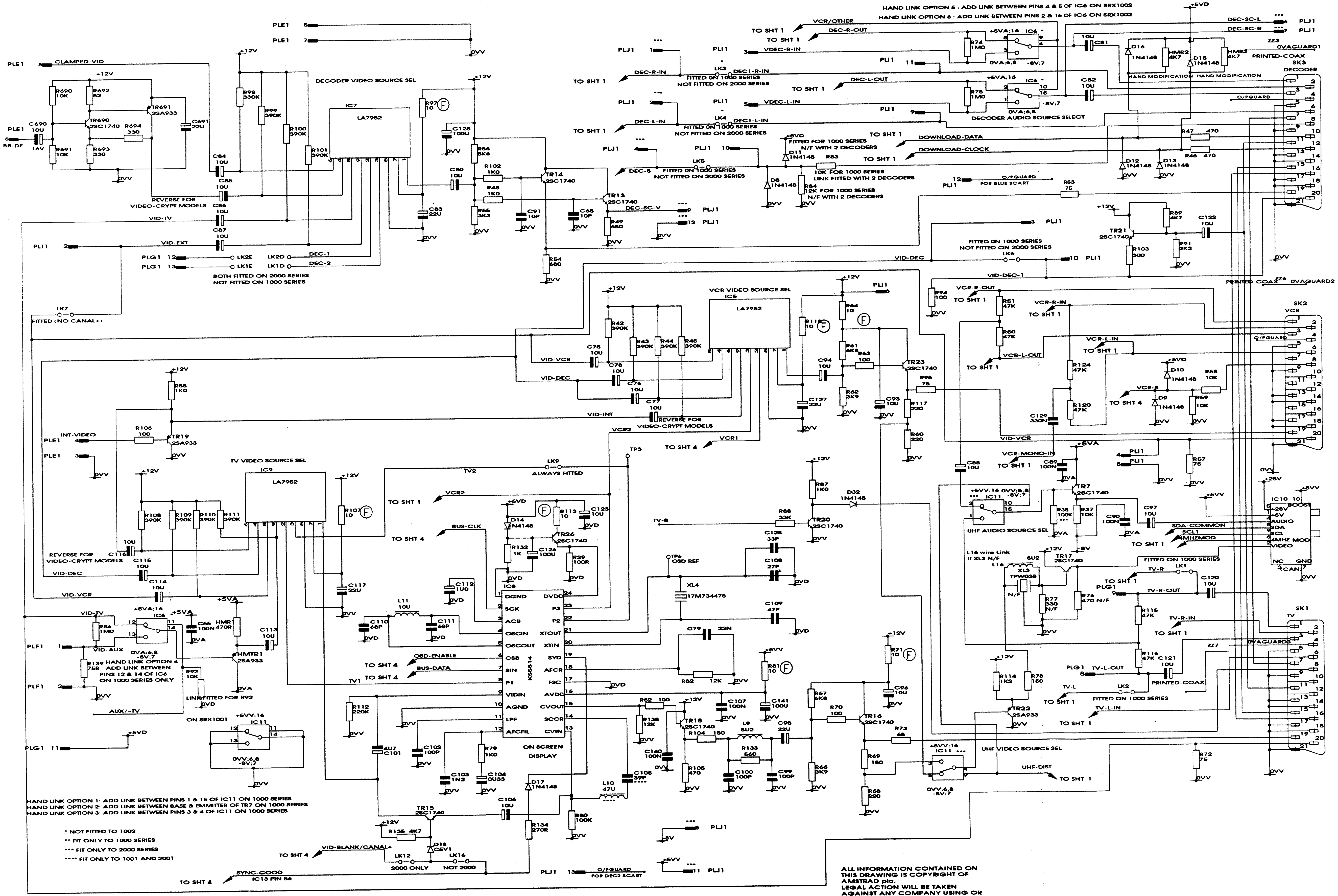
Main PCB Schematic Diagram 2/3


DECODER VIDEO SOURCE SEL
IC7 LA7952
VCR VIDEO SOURCE SEL
IC5 LA7952
TV VIDEO SOURCE SEL
IC9 LA7952
IC8 KS6514
ON SCREEN DISPLAY
DGND
SCK
ACB
OSCIN
OSCOUT
CSB
SIN
P1
VIDIN
AGND
LPF
AFCFIL
DVDD
P3
P2
XTOUT
XTIN
SYD
AFCR
FSC
AVDD
CVOUT
SCCR
CVIN
DECODER AUDIO SOURCE SELECT
UHF AUDIO SOURCE SEL
UHF VIDEO SOURCE SEL
IC10 MOD
SK3 DECODER
SK2 VCR
SK1 TV
PRINTED-COAX
0VAGUARD1
0VAGUARD2
HAND MODIFICATION
CLAMPED-VID
VID-TV
VID-EXT
VID-DEC
VID-VCR
VID-INT
INT-VIDEO
VCR-R-OUT
VCR-R-IN
VCR-L-IN
VCR-L-OUT
DEC-R-OUT
DEC-L-OUT
DEC-R-IN
DEC-L-IN
DOWNLOAD-DATA
DOWNLOAD-CLOCK
TV-R-OUT
TV-L-OUT
TV-R-IN
TV-L-IN
SDA-COMMON
SCL1
4MHZMOD
OSD-ENABLE
BUS-DATA
BUS-CLK
UHF-DIST
VID-BLANK/CANAL+
SYNC-GOOD
IC13 PIN 56
TO SHT 1
TO SHT 4
XL4 17M734475
REVERSE FOR VIDEO-CRYPT MODELS
FITTED ON 1000 SERIES
NOT FITTED ON 2000 SERIES
BOTH FITTED ON 2000 SERIES
NOT FITTED ON 1000 SERIES
LK7 FITTED (NO CANAL+)
LK9 ALWAYS FITTED
L16 wire Link If XL3 N/F
ON SRX1001
LK12 2000 ONLY
LK16 NOT 2000
O/PGUARD FOR DEC2 SCART
O/PGUARD FOR BLUE SCART

HAND LINK OPTION 5 : ADD LINK BETWEEN PINS 4 & 5 OF IC6 ON SRX1002
HAND LINK OPTION 6 : ADD LINK BETWEEN PINS 2 & 15 OF IC6 ON SRX1002

HAND LINK OPTION 4 ADD LINK BETWEEN PINS 12 & 14 OF IC6 ON 1000 SERIES ONLY

HAND LINK OPTION 1: ADD LINK BETWEEN PINS 1 & 15 OF IC11 ON 1000 SERIES
HAND LINK OPTION 2: ADD LINK BETWEEN BASE & EMMITTER OF TR7 ON 1000 SERIES
HAND LINK OPTION 3: ADD LINK BETWEEN PINS 3 & 4 OF IC11 ON 1000 SERIES

* NOT FITTED TO 1002
** FIT ONLY TO 1000 SERIES
*** FIT ONLY TO 2000 SERIES
**** FIT ONLY TO 1001 AND 2001

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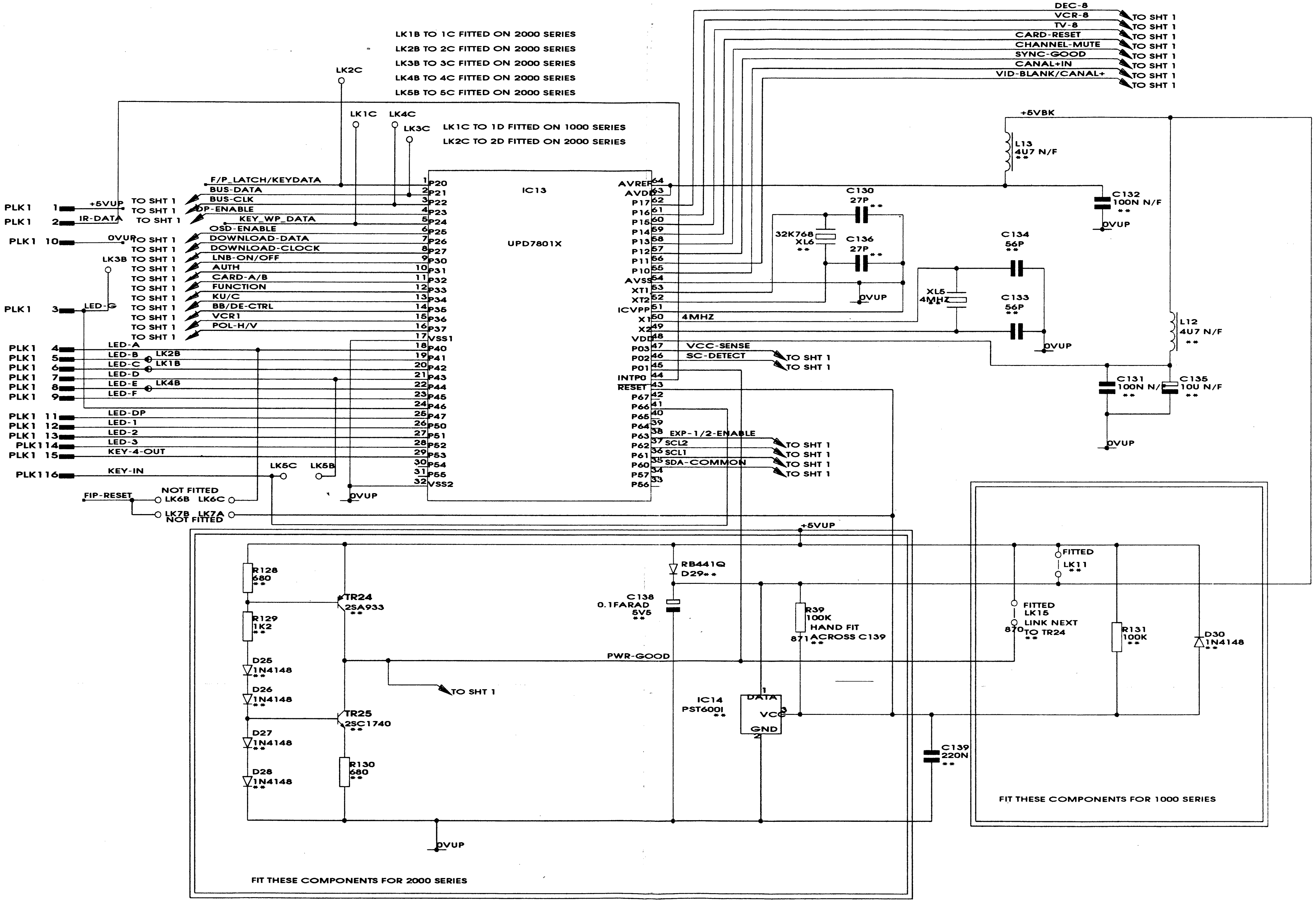
Main PCB Schematic Diagram 3/3


LK1B TO 1C FITTED ON 2000 SERIES
LK2B TO 2C FITTED ON 2000 SERIES
LK3B TO 3C FITTED ON 2000 SERIES
LK4B TO 4C FITTED ON 2000 SERIES
LK5B TO 5C FITTED ON 2000 SERIES
LK1C TO 1D FITTED ON 1000 SERIES
LK2C TO 2D FITTED ON 2000 SERIES
LK2C
LK1C
LK4C
LK3C
IC13
UPD7801X
F/P_LATCH/KEYDATA
BUS-DATA
BUS-CLK
OP-ENABLE
KEY_WP_DATA
OSD-ENABLE
DOWNLOAD-DATA
DOWNLOAD-CLOCK
LNB-ON/OFF
AUTH
CARD-A/B
FUNCTION
KU/C
BB/DE-CTRL
VCR1
POL-H/V
TO SHT 1
PLK1 1
PLK1 2
PLK1 10
PLK1 3
PLK1 4
PLK1 5
PLK1 6
PLK1 7
PLK1 8
PLK1 9
PLK1 11
PLK1 12
PLK1 13
PLK1 14
PLK1 15
PLK1 16
+5VUP
IR-DATA
0VUP
LK3B
LED-G
LED-A
LED-B
LED-C
LED-D
LED-E
LED-F
LK2B
LK1B
LK4B
LED-DP
LED-1
LED-2
LED-3
KEY-4-OUT
KEY-IN
LK5C
LK5B
NOT FITTED
FIP-RESET
LK6B
LK6C
LK7B
LK7A
NOT FITTED
P20
P21
P22
P23
P24
P25
P26
P27
P30
P31
P32
P33
P34
P35
P36
P37
VSS1
P40
P41
P42
P43
P44
P45
P46
P47
P50
P51
P52
P53
P54
P55
VSS2
AVREF
AVDD
P17
P16
P15
P14
P13
P12
P11
P10
AVSS
XT1
XT2
ICVPP
X1
X2
VDD
P03
P02
P01
INTP0
RESET
P67
P66
P65
P64
P63
P62
P61
P60
P57
P56
DEC-8
VCR-8
TV-8
CARD-RESET
CHANNEL-MUTE
SYNC-GOOD
CANAL+IN
VID-BLANK/CANAL+
+5VBK
L13
4U7 N/F
C132
100N N/F
C130
27P
32K768
XL6
C136
27P
C134
56P
XL5
4MHZ
C133
56P
L12
4U7 N/F
4MHZ
VCC-SENSE
SC-DETECT
C131
100N N/F
C135
10U N/F
EXP-1/2-ENABLE
SCL2
SCL1
SDA-COMMON
+5VUP
R128
680
TR24
2SA933
R129
1K2
D25
1N4148
D26
1N4148
D27
1N4148
D28
1N4148
TR25
2SC1740
R130
680
RB441Q
D29
C138
0.1FARAD
5V5
PWR-GOOD
IC14
PST600I
DATA
VCC
GND
R39
100K
HAND FIT
ACROSS C139
C139
220N
FITTED
LK11
FITTED
LK15
LINK NEXT
TO TR24
R131
100K
D30
1N4148
FIT THESE COMPONENTS FOR 2000 SERIES
FIT THESE COMPONENTS FOR 1000 SERIES

** DO NOT FIT IF PIGGY-BACK PCB FITTED

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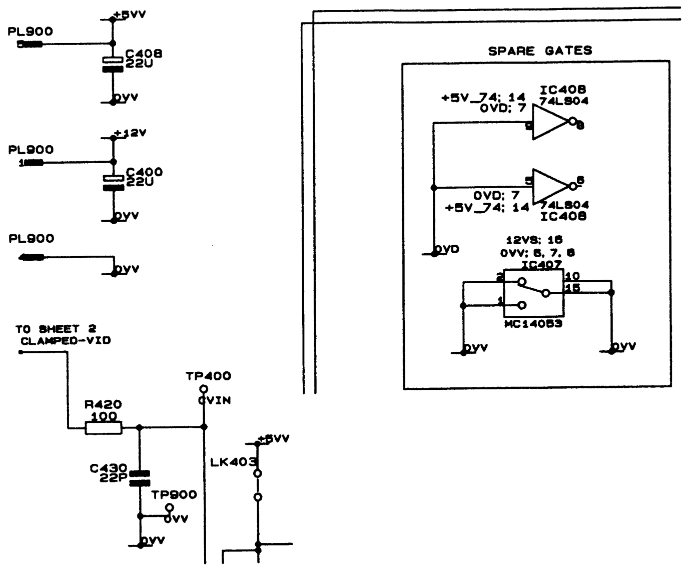
Videocrypt Decoder Schematic Diagram 1/2


PL900
+5VV
C408
22U
0VV
PL900
+12V
C400
22U
0VV
PL900
0VV
TO SHEET 2
CLAMPED-VID
R420
100
TP400
VIN
C430
22P
TP900
0VV
0VV
LK403
+5VV
SPARE GATES
+5V_74: 14
0VD: 7
IC408
74LS04
9
8
5
6
0VD: 7
+5V_74: 14
74LS04
IC408
0VD
12VS: 16
0VV: 6, 7, 8
IC407
2
1
10
15
MC14053
0VV
0VV

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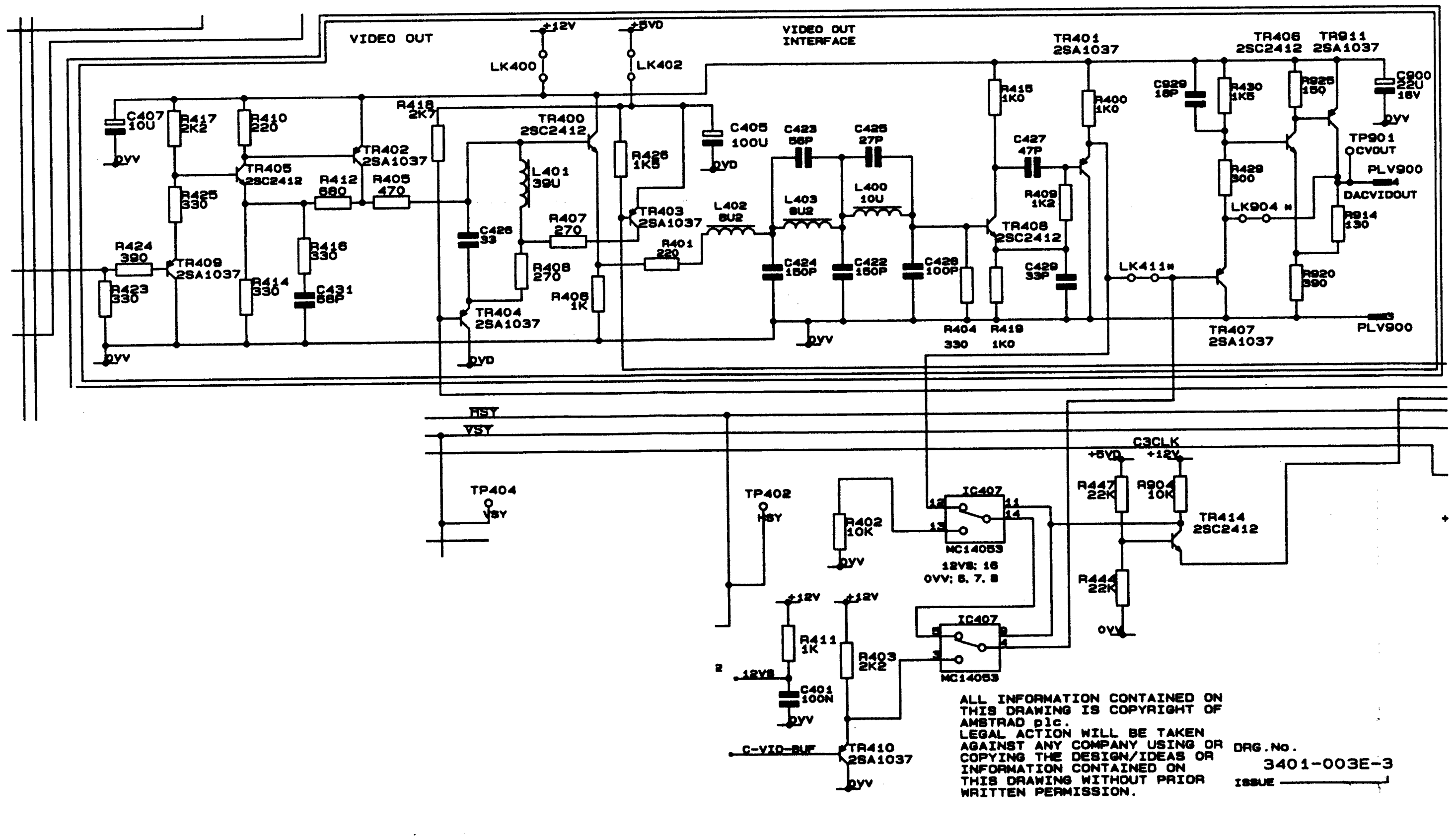
VIDEO OUT
+12V
+5VD
LK400
LK402
VIDEO OUT
INTERFACE
C407
10U
0VV
R417
2K2
R410
220
R418
2K7
TR402
2SA1037
TR405
2SC2412
R412
680
R405
470
R425
330
R424
390
R423
330
TR409
2SA1037
R414
330
R416
330
C431
68P
0VV
TR400
2SC2412
L401
39U
C426
33
R407
270
R408
270
R406
1K
TR404
2SA1037
0VD
R426
1K5
TR403
2SA1037
R401
220
C405
100U
0VD
C423
56P
C425
27P
L402
8U2
L403
8U2
L400
10U
C424
150P
C422
150P
C428
100P
0VV
R404
330
R419
1K0
TR401
2SA1037
R415
1K0
R400
1K0
C427
47P
R409
1K2
TR408
2SC2412
C429
33P
LK411*
TR406
2SC2412
TR911
2SA1037
C929
18P
R430
1K5
R925
150
C900
22U
16V
0VV
TP901
CVOUT
PLV900
DACVIDOUT
R429
300
LK904 *
R914
130
R920
390
TR407
2SA1037
PLV900
HSY
VSY
TP404
VSY
TP402
HSY
R402
10K
0VV
IC407
12
13
11
14
MC14053
12VS: 16
0VV: 6, 7, 8
C3CLK
+5VD
+12V
R447
22K
R904
10K
TR414
2SC2412
R444
22K
0VV
+12V
+12V
R411
1K
R403
2K2
2
12VS
C401
100N
0VV
IC407
5
3
9
4
MC14053
C-VID-BUF
TR410
2SA1037
0VV

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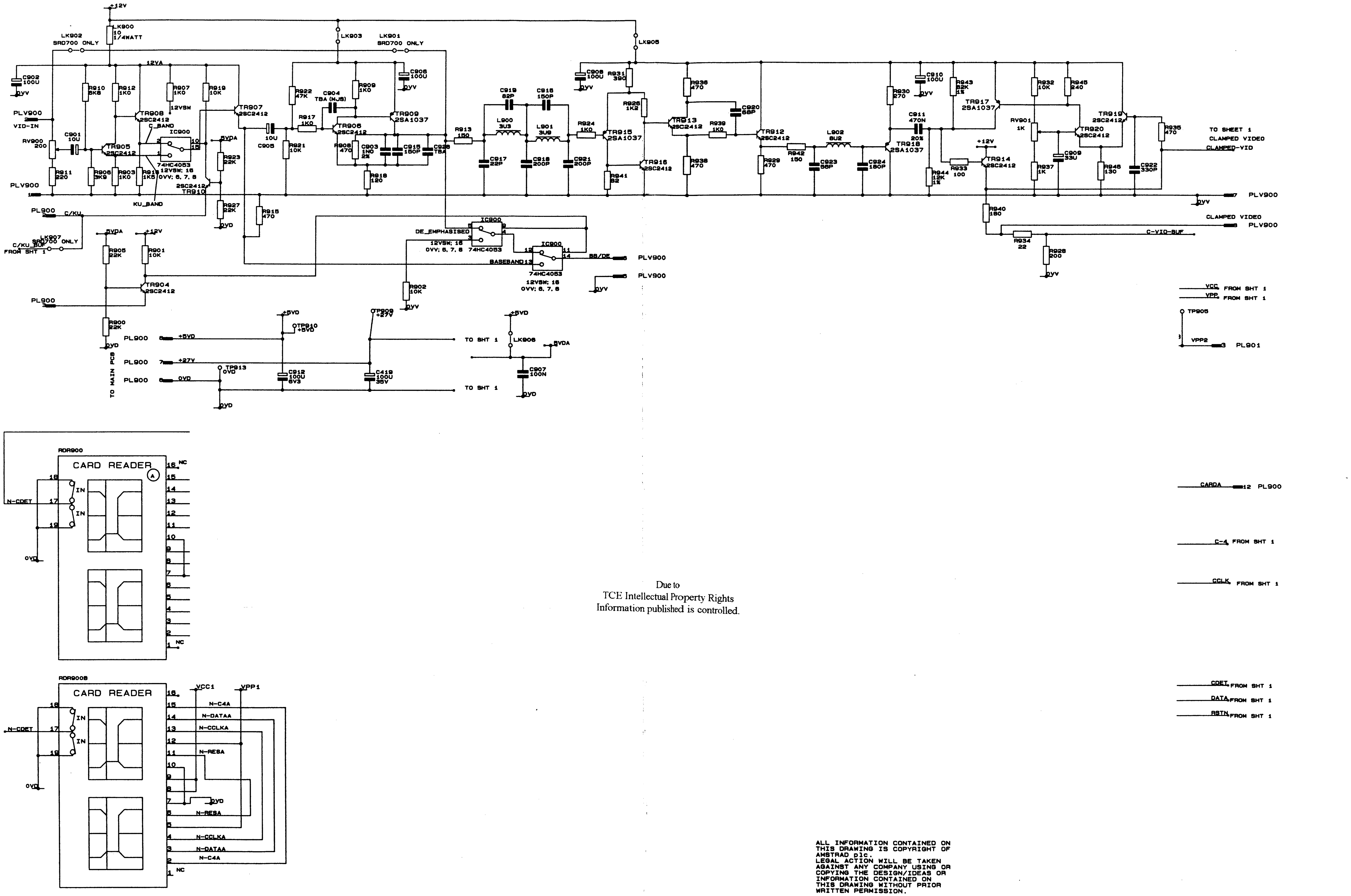
Videocrypt Decoder Schematic Diagram 2/2


+12V
LK900 10 1/4WATT
LK902 SRD700 ONLY
LK903
LK901 SRD700 ONLY
LK905
C902 100U
PLV900 VID-IN
RV900 200
C901 10U
TR905 2SC2412
TR908 2SC2412
C_BAND
IC900 74HC4053
12VSW; 16 0VV; 6, 7, 8
KU_BAND
TR910 2SC2412
TR907 2SC2412
TR906 2SC2412
TR909 2SA1037
C904 TBA (MJS)
C905 10U
TR915 2SA1037
TR913 2SC2412
TR916 2SC2412
TR912 2SC2412
TR918 2SA1037
TR917 2SA1037
TR914 2SC2412
TR920 2SC2412
TR919 2SC2412
RV901 1K
L900 3U3
L901 3U9
L902 8U2
TO SHEET 1 CLAMPED VIDEO
CLAMPED-VID
PLV900
CLAMPED VIDEO
C-VID-BUF
C/KU
C/KU_BUF FROM SHT 1
LK907 SRD700 ONLY
TR904 2SC2412
DE_EMPHASISED
BASEBAND
SS/DE
TO MAIN PCB
PL900 +5VD
PL900 +27V
PL900 0VD
TP913 0VD
TP910 +5VD
TP909 +27V
C912 100U 6V3
C419 100U 35V
TO SHT 1
LK906
C907 100N
VCC FROM SHT 1
VPP FROM SHT 1
TP905
VPP2 PL901
CARDA PL900
C-4 FROM SHT 1
CCLK FROM SHT 1
CDET FROM SHT 1
DATA FROM SHT 1
RSTN FROM SHT 1
RDR900
CARD READER
N-CDET
IN
NC
RDR900B
VCC1
VPP1
N-C4A
N-DATAA
N-CCLKA
N-RESA

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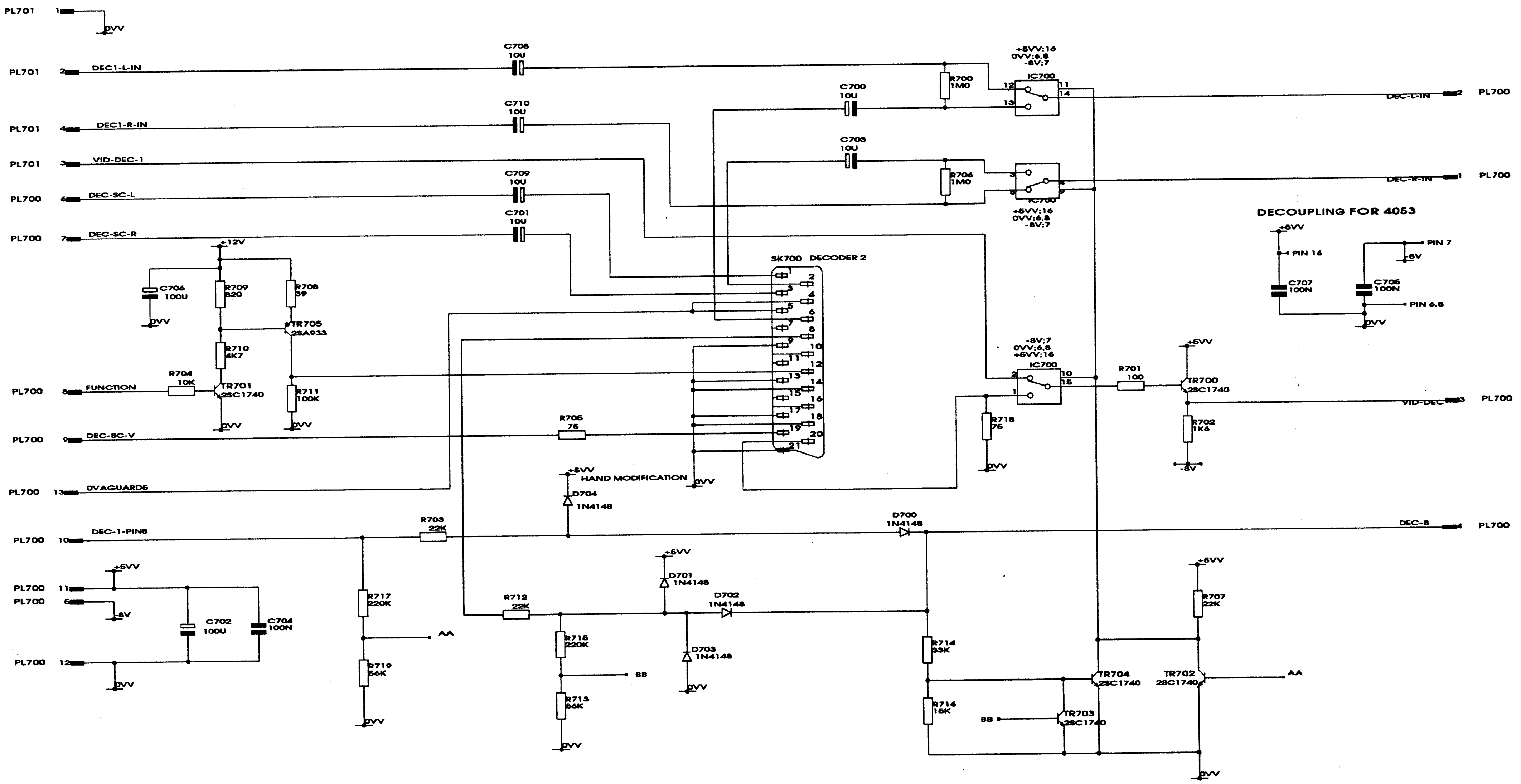
2’nd Decoder Interface Schematic Diagram


PL701 1
0VV
PL701 2 DEC1-L-IN
C708 10U
PL701 4 DEC1-R-IN
C710 10U
PL701 3 VID-DEC-1
PL700 6 DEC-SC-L
C709 10U
PL700 7 DEC-SC-R
C701 10U
+12V
C706 100U
0VV
R709 820
R708 39
TR705 2SA933
R710 4K7
R704 10K
PL700 8 FUNCTION
TR701 2SC1740
R711 100K
0VV
0VV
PL700 9 DEC-SC-V
R706 75
PL700 13 0VAGUARD5
+5VV
HAND MODIFICATION
0VV
D704 1N4148
R703 22K
PL700 10 DEC-1-PIN8
PL700 11
PL700 5
+5VV
-8V
C702 100U
C704 100N
PL700 12
0VV
R717 220K
AA
R719 56K
0VV
R712 22K
R715 220K
BB
R713 56K
0VV
+5VV
D701 1N4148
D702 1N4148
D703 1N4148
0VV
C700 10U
R700 1M0
+5VV;16
0VV;6,8
-8V;7
IC700
12
13
11
14
DEC-L-IN 2 PL700
C703 10U
R706 1M0
3
5
4
9
IC700
+5VV;16
0VV;6,8
-8V;7
DEC-R-IN 1 PL700
DECOUPLING FOR 4053
+5VV
PIN 16
PIN 7
-8V
C707 100N
C705 100N
PIN 6,8
0VV
SK700 DECODER 2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
-8V;7
0VV;6,8
+5VV;16
IC700
2
1
10
15
R718 75
0VV
R701 100
+5VV
TR700 2SC1740
VID-DEC 3 PL700
R702 1K6
-8V
D700 1N4148
DEC-8 4 PL700
+5VV
R707 22K
R714 33K
R716 15K
TR704 2SC1740
TR702 2SC1740
AA
BB
TR703 2SC1740
0VV

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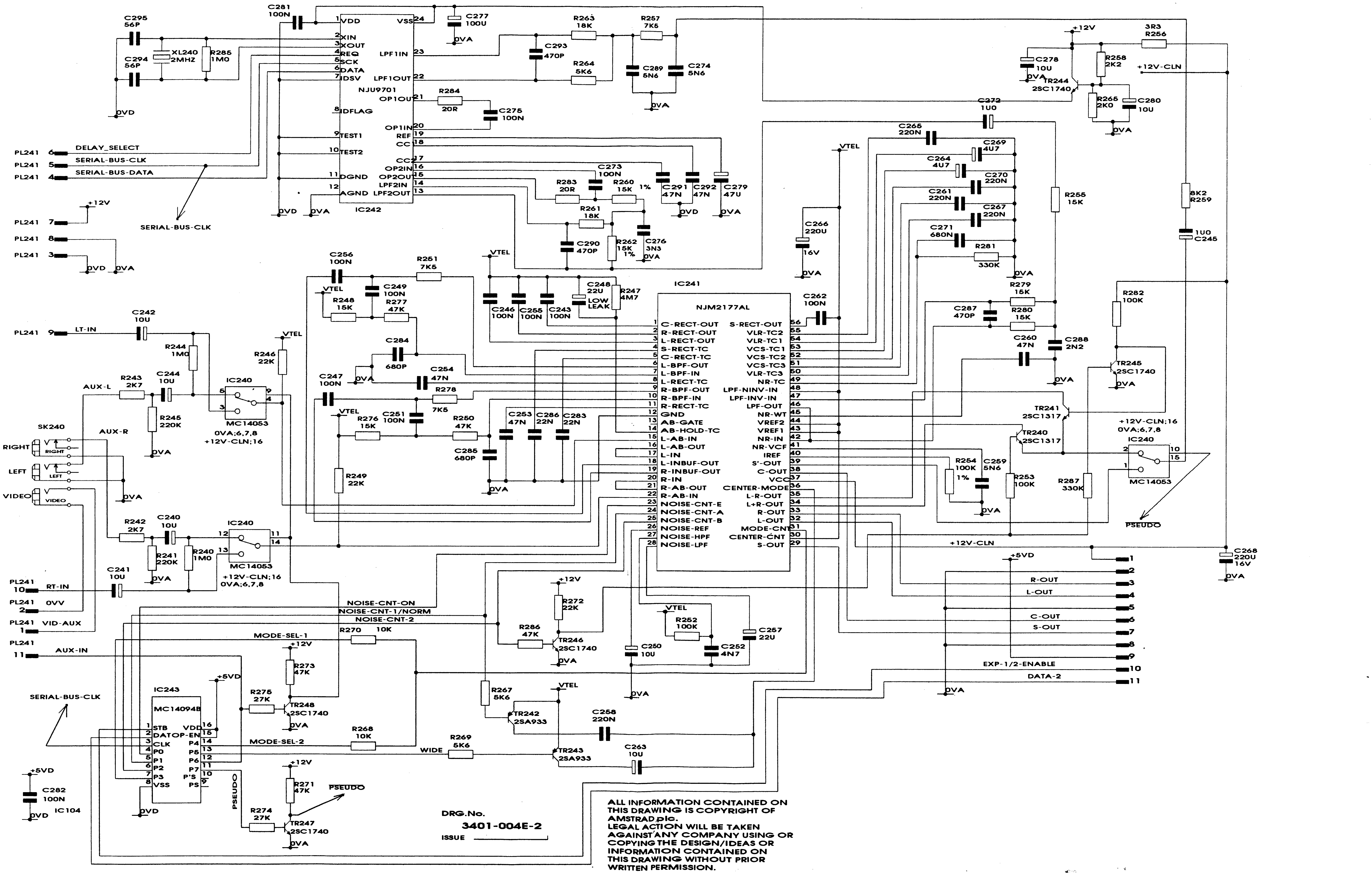
Prologic PCB Schematic Diagram


IC242
NJU9701
1 VDD
2 XIN
3 XOUT
4 REQ
5 SCK
6 DATA
7 IDSV
8 IDFLAG
9 TEST1
10 TEST2
11 DGND
12 AGND
VSS 24
LPF1IN 23
LPF1OUT 22
OP1OUT 21
OP1IN 20
REF 19
CC 18
CC 17
OP2IN 16
OP2OUT 15
LPF2IN 14
LPF2OUT 13
C281 100N
C277 100U
C295 56P
C294 56P
XL240 2MHZ
R285 1M0
R263 18K
R257 7K5
C293 470P
R264 5K6
C289 5N6
C274 5N6
R284 20R
C275 100N
C273 100N
R283 20R
R260 15K 1%
C291 47N
C292 47N
C279 47U
R261 18K
C290 470P
R262 15K 1%
C276 3N3
0VD
0VA
PL241
DELAY_SELECT
SERIAL-BUS-CLK
SERIAL-BUS-DATA
+12V
LT-IN
C242 10U
R244 1M0
R243 2K7
C244 10U
AUX-L
AUX-R
R245 220K
IC240
MC14053
0VA;6,7,8
+12V-CLN;16
SK240
RIGHT
LEFT
VIDEO
R242 2K7
C240 10U
R241 220K
R240 1M0
C241 10U
RT-IN
0VV
VID-AUX
AUX-IN
R246 22K
VTEL
C256 100N
R251 7K5
C249 100N
R248 15K
R277 47K
C284 680P
C254 47N
C247 100N
R278 7K5
R276 15K
C251 100N
R250 47K
C285 680P
R249 22K
C246 100N
C255 100N
C243 100N
C248 22U LOW LEAK
R247 4M7
C253 47N
C286 22N
C283 22N
IC241
NJM2177AL
1 C-RECT-OUT
2 R-RECT-OUT
3 L-RECT-OUT
4 S-RECT-TC
5 C-RECT-TC
6 L-BPF-OUT
7 L-BPF-IN
8 L-RECT-TC
9 R-BPF-OUT
10 R-BPF-IN
11 R-RECT-TC
12 GND
13 AB-GATE
14 AB-HOLD-TC
15 L-AB-IN
16 L-AB-OUT
17 L-IN
18 L-INBUF-OUT
19 R-INBUF-OUT
20 R-IN
21 R-AB-OUT
22 R-AB-IN
23 NOISE-CNT-E
24 NOISE-CNT-A
25 NOISE-CNT-B
26 NOISE-REF
27 NOISE-HPF
28 NOISE-LPF
S-RECT-OUT 56
VLR-TC2 55
VLR-TC1 54
VCS-TC1 53
VCS-TC2 52
VCS-TC3 51
VLR-TC3 50
NR-TC 49
LPF-NINV-IN 48
LPF-INV-IN 47
LPF-OUT 46
NR-WT 45
VREF2 44
VREF1 43
NR-IN 42
NR-VCF 41
IREF 40
S'-OUT 39
C-OUT 38
VCC 37
CENTER-MODE 36
L-R-OUT 35
L+R-OUT 34
R-OUT 33
L-OUT 32
MODE-CNT 31
CENTER-CNT 30
S-OUT 29
C262 100N
C265 220N
C272 1U0
C269 4U7
C264 4U7
C270 220N
C261 220N
C267 220N
C271 680N
R281 330K
C266 220U 16V
R255 15K
+12V
C278 10U
R258 2K2
TR244 2SC1740
R265 2K0
C280 10U
3R3 R256
+12V-CLN
8K2 R259
1U0 C245
R279 15K
R280 15K
C287 470P
C260 47N
C288 2N2
R282 100K
TR245 2SC1740
TR241 2SC1317
TR240 2SC1317
+12V-CLN;16
0VA;6,7,8
R254 100K 1%
C259 5N6
R253 100K
R287 330K
PSEUDO
C268 220U 16V
+5VD
R-OUT
L-OUT
C-OUT
S-OUT
EXP-1/2-ENABLE
DATA-2
NOISE-CNT-ON
NOISE-CNT-1/NORM
NOISE-CNT-2
MODE-SEL-1
R270 10K
R272 22K
R286 47K
TR246 2SC1740
VTEL
R252 100K
C257 22U
C250 10U
C252 4N7
R273 47K
R275 27K
TR248 2SC1740
IC243
MC14094B
1 STB
2 DATOP-EN
3 CLK
4 P0
5 P1
6 P2
7 P3
8 VSS
VDD 16
15
P4 14
P5 13
P6 12
P7 11
P'S 10
PS 9
MODE-SEL-2
R268 10K
R267 5K6
TR242 2SA933
C258 220N
R269 5K6
WIDE
TR243 2SA933
C263 10U
R271 47K
R274 27K
TR247 2SC1740
SERIAL-BUS-CLK
C282 100N
IC104

DRG.No.
3401-004E-2
ISSUE

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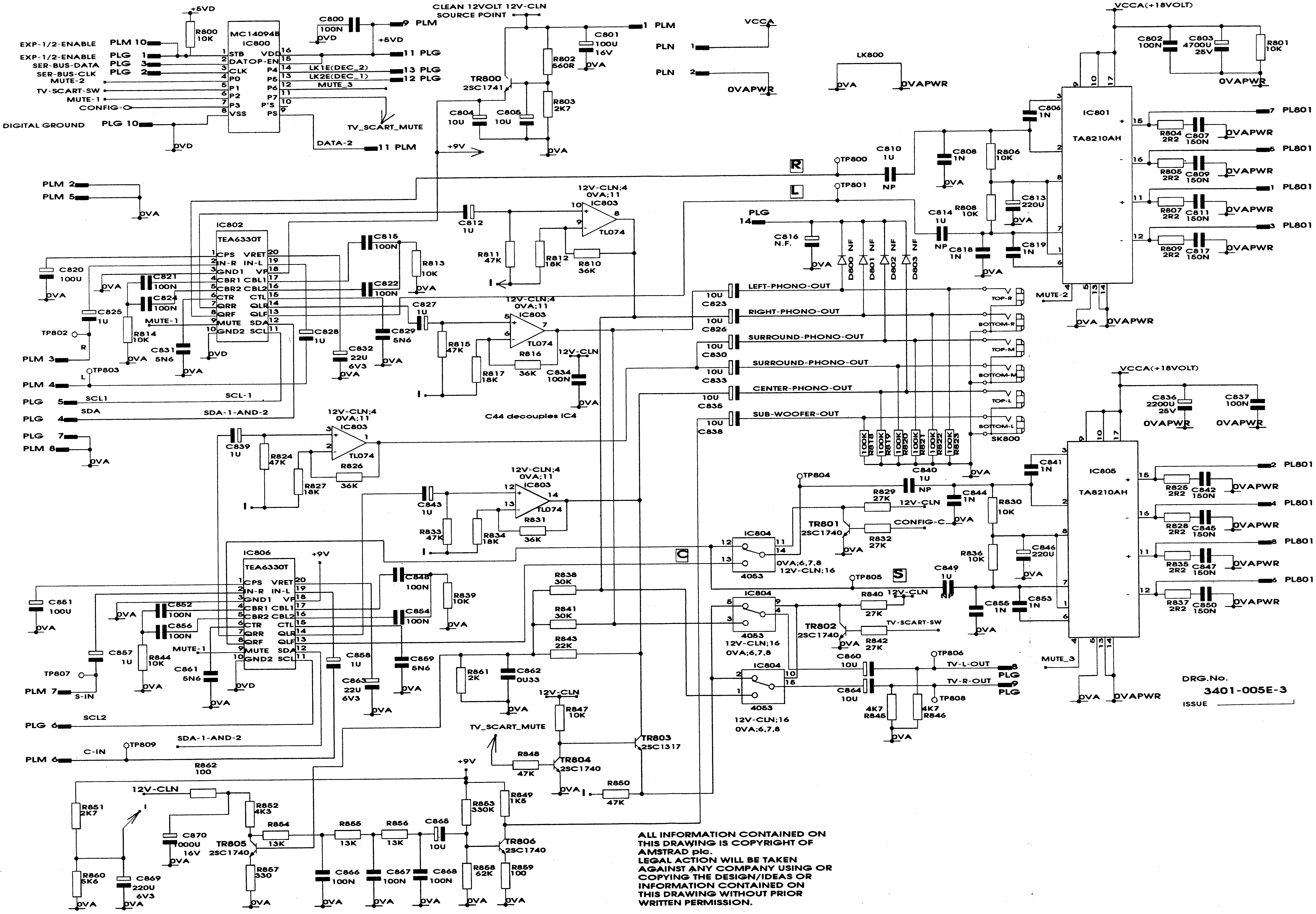
Audio Amp MkI Schematic Diagram



IC800 MC14094B
IC802 TEA6330T
IC806 TEA6330T
IC803 TL074
IC801 TA8210AH
IC805 TA8210AH
IC804 4053
TR800 2SC1741
TR801 2SC1740
TR802 2SC1740
TR803 2SC1317
TR804 2SC1740
TR805 2SC1740
TR806 2SC1740
CLEAN 12VOLT 12V-CLN SOURCE POINT
VCCA(+18VOLT)
+5VD
+9V
12V-CLN
0VD
0VA
0VAPWR
LK800
EXP-1/2-ENABLE
SER-BUS-DATA
SER-BUS-CLK
MUTE-2
TV-SCART-SW
MUTE-1
CONFIG-C
DIGITAL GROUND
LK1E(DEC_2)
LK2E(DEC_1)
MUTE_3
TV_SCART_MUTE
DATA-2
SCL1
SDA
SDA-1-AND-2
SCL2
S-IN
C-IN
LEFT-PHONO-OUT
RIGHT-PHONO-OUT
SURROUND-PHONO-OUT
CENTER-PHONO-OUT
SUB-WOOFER-OUT
TOP-R
BOTTOM-R
TOP-M
BOTTOM-M
TOP-L
BOTTOM-L
SK800
TV-L-OUT
TV-R-OUT
C44 decouples IC4
PL801
PLM
PLG
PLN
R
L
C
S

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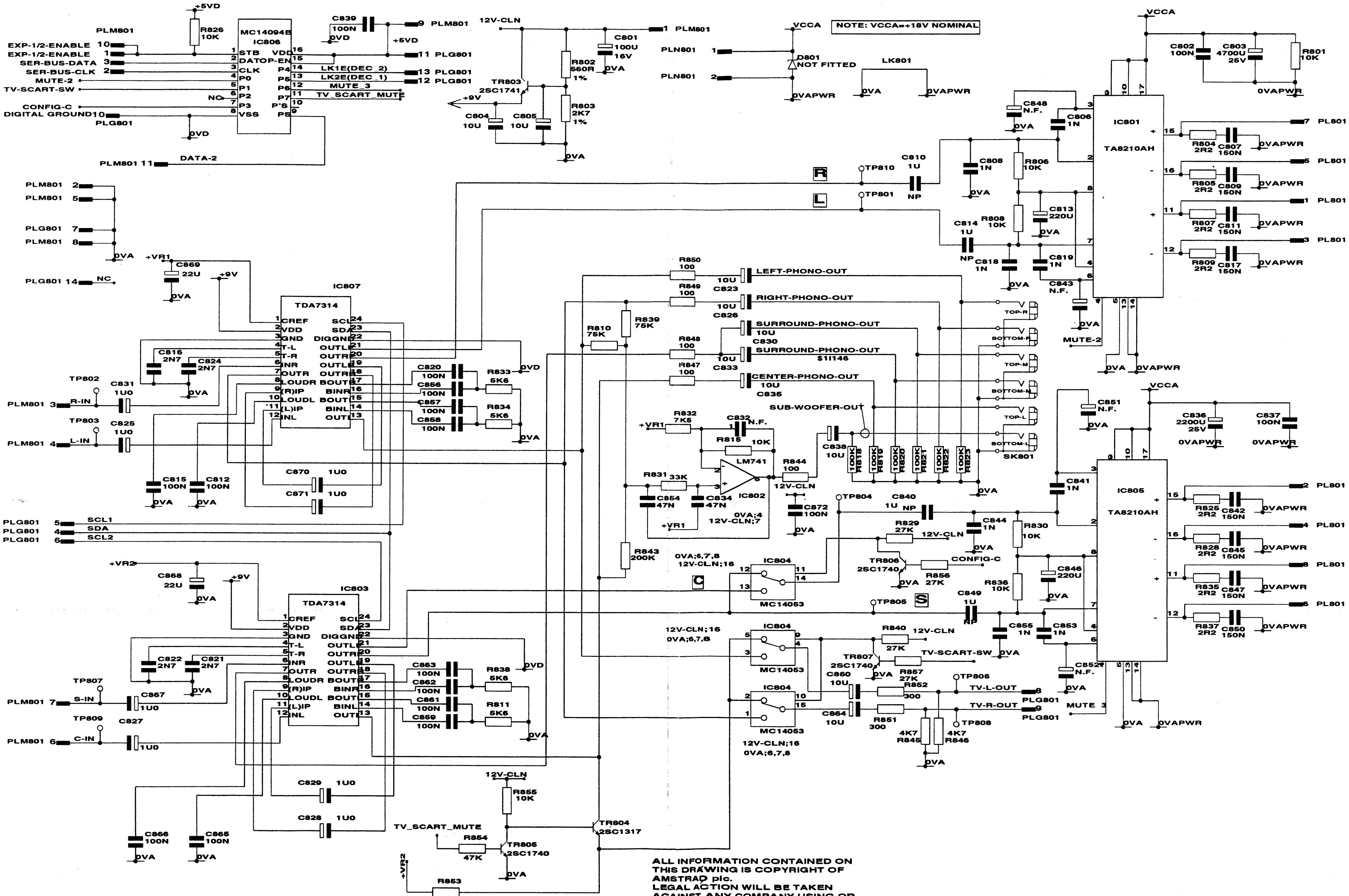
DRG.No. 3401-005E-3

ISSUE

Audio Amp MkII Schematic Diagram


+5VD
R826 10K
MC14094B IC806
PLM801
EXP-1/2-ENABLE 10
EXP-1/2-ENABLE 1
SER-BUS-DATA 3
SER-BUS-CLK 2
MUTE-2
TV-SCART-SW
CONFIG-C
DIGITAL GROUND 10
PLG801
STB VDD
DATOP-EN
CLK P4
P0 P5
P1 P6
P2 P7
P3 P'S
VSS P8
NC
LK1E(DEC_2)
LK2E(DEC_1)
MUTE_3
TV_SCART_MUTE
C839 100N
0VD
+5VD
9 PLM801
11 PLG801
13 PLG801
12 PLG801
PLM801 11 DATA-2
12V-CLN
TR803 2SC1741
+9V
C804 10U
C805 10U
R802 560R 1%
R803 2K7 1%
C801 100U 16V
0VA
1 PLM801
PLN801 1
PLN801 2
VCCA
NOTE: VCCA=+18V NOMINAL
D801 NOT FITTED
0VAPWR
LK801
VCCA
C802 100N
C803 4700U 25V
R801 10K
C848 N.F.
C806 1N
IC801 TA8210AH
R804 2R2 C807 150N
R805 2R2 C809 150N
R807 2R2 C811 150N
R809 2R2 C817 150N
7 PL801
5 PL801
1 PL801
3 PL801
R806 10K
C808 1N
C810 1U NP
TP810
TP801
R
L
R808 10K
C813 220U
C814 1U NP
C818 1N
C819 1N
C843 N.F.
MUTE-2
PLM801 2
PLM801 5
PLG801 7
PLM801 8
PLG801 14 NC
+VR1
C869 22U
+9V
IC807 TDA7314
CREF SCL
VDD SDA
GND DIGGND
T-L OUTLF
T-R OUTRF
INR OUTLR
OUTR OUTRR
LOUDR BOUTR
(R)IP BINR
LOUDL BOUTL
(L)IP BINL
INL OUTL
C816 2N7
C824 2N7
TP802
C831 1U0
PLM801 3 R-IN
TP803
C825 1U0
PLM801 4 L-IN
C820 100N
C856 100N
C857 100N
C858 100N
R833 5K6
R834 5K6
C815 100N
C812 100N
C870 1U0
C871 1U0
R850 100
R849 100
R848 100
R847 100
C823 10U
C826 10U
C830 10U
C833 10U
C835 10U
LEFT-PHONO-OUT
RIGHT-PHONO-OUT
SURROUND-PHONO-OUT
SURROUND-PHONO-OUT
CENTER-PHONO-OUT
SUB-WOOFER-OUT
R810 75K
R839 75K
R832 7K5
C832 N.F.
R815 10K
LM741 IC802
R831 33K
C854 47N
C834 47N
R844 100
C838 10U
R818 R819 R820 R821 R822 R823 100K
TOP-R
BOTTOM-R
TOP-M
BOTTOM-M
TOP-L
BOTTOM-L
SK801
0VA;4 12V-CLN;7
C872 100N
R843 200K
0VA;6,7,8 12V-CLN;16
IC804 MC14053
C
TP804
C840 1U NP
R829 27K
12V-CLN
C844 1N
TR806 2SC1740
R856 27K
CONFIG-C
R830 10K
R836 10K
C846 220U
TP805
S
C849 1U NP
C855 1N
C853 1N
C841 1N
IC805 TA8210AH
C851 N.F.
C836 2200U 25V
C837 100N
R825 2R2 C842 150N
R828 2R2 C845 150N
R835 2R2 C847 150N
R837 2R2 C850 150N
2 PL801
4 PL801
8 PL801
6 PL801
C852 N.F.
MUTE 3
PLG801 5 SCL1
PLG801 4 SDA
PLG801 6 SCL2
+VR2
C868 22U
IC803 TDA7314
C822 2N7
C821 2N7
TP807
PLM801 7 S-IN
C867 1U0
TP809
C827
PLM801 6 C-IN
C863 100N
C862 100N
C861 100N
C859 100N
R838 5K6
R811 5K6
C829 1U0
C828 1U0
C866 100N
C865 100N
12V-CLN;16 0VA;6,7,8
R840 27K
TR807 2SC1740
R857 27K
TV-SCART-SW
C860 10U
C864 10U
R852 300
R851 300
TP806
TV-L-OUT
TV-R-OUT
TP808
8 PLG801
9 PLG801
R845 4K7
R846 4K7
12V-CLN
R855 10K
TR804 2SC1317
TV_SCART_MUTE
R854 47K
TR805 2SC1740
+VR2
R853 47K

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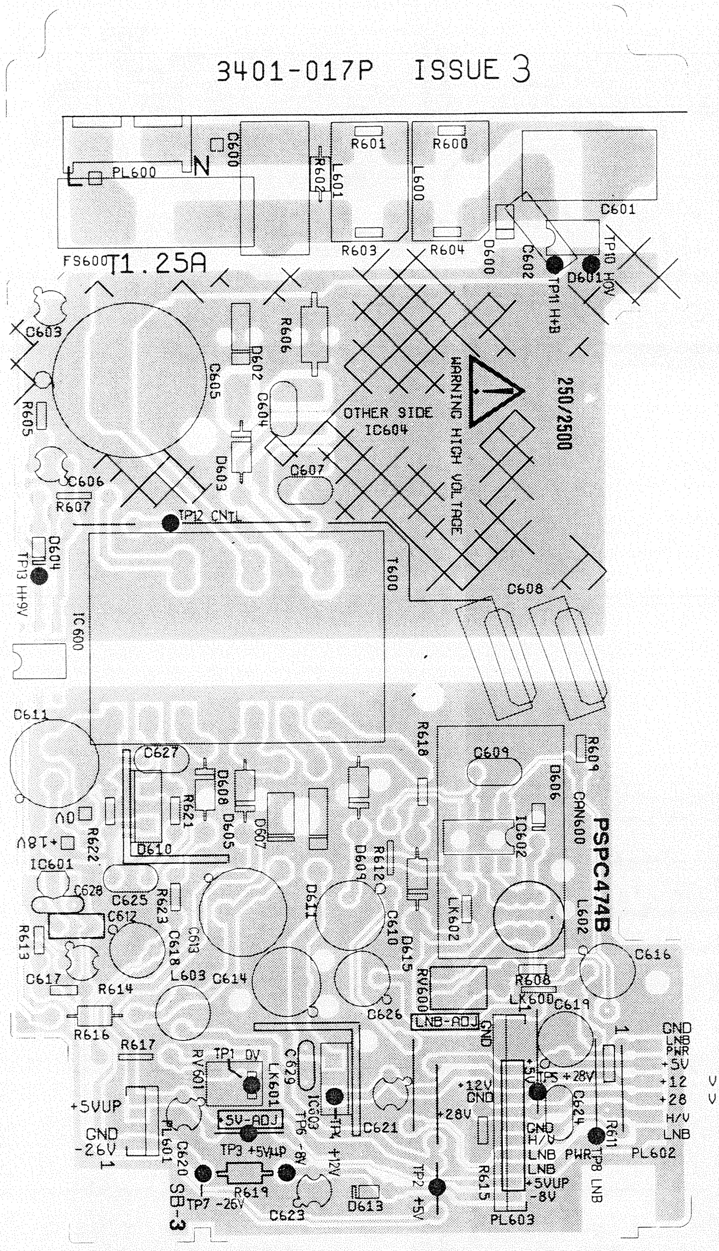
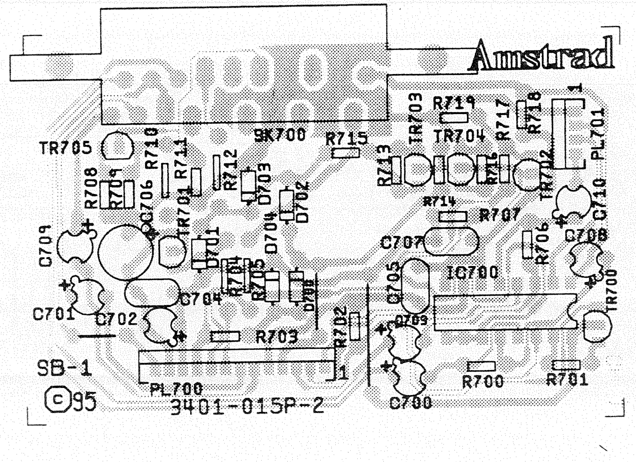
DRG.No.
3401-033E-L
ISSUE

Scart PCB Comp Layout

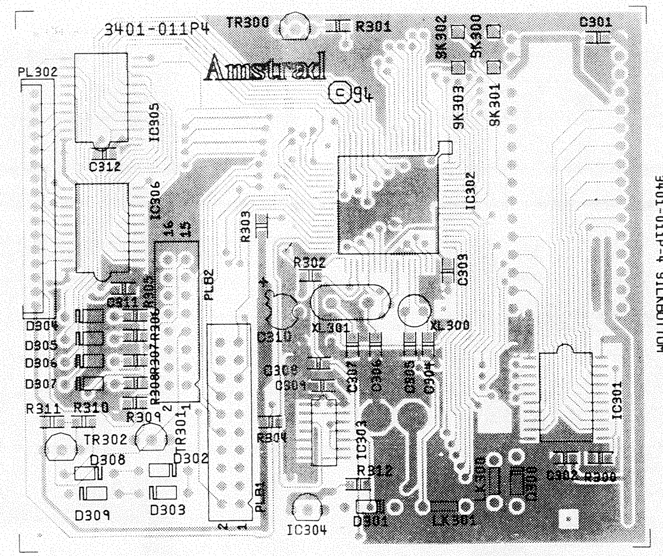
PSU PCB Component Layout

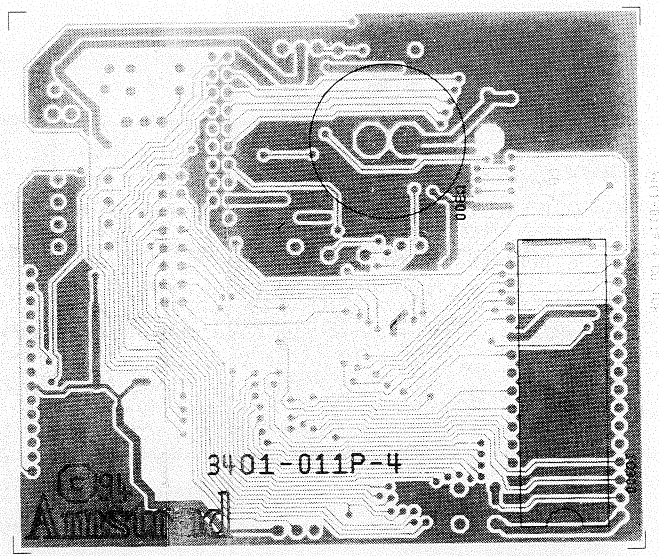

3401-017P ISSUE 3
PL600
FS600 T1.25A
R601
R600
R603
R604
C601
TP10 H/V
TP11 HHB
WARNING HIGH VOLTAGE
250/2500
OTHER SIDE IC604
TP12 CNTL
T600
C608
IC600
TP13 HHV
PSPC474B
LNB-ADJ
5V-ADJ
+5VUP
GND
-26V
SB-3
TP7 -26V
TP3 +5VUP
TP2 +5V
PL601
PL602
PL603
GND
LNB PWR
+5V
+12
+28
H/V
LNB

MODEL-250/2500
P/N-PSPC474B
29/12/94

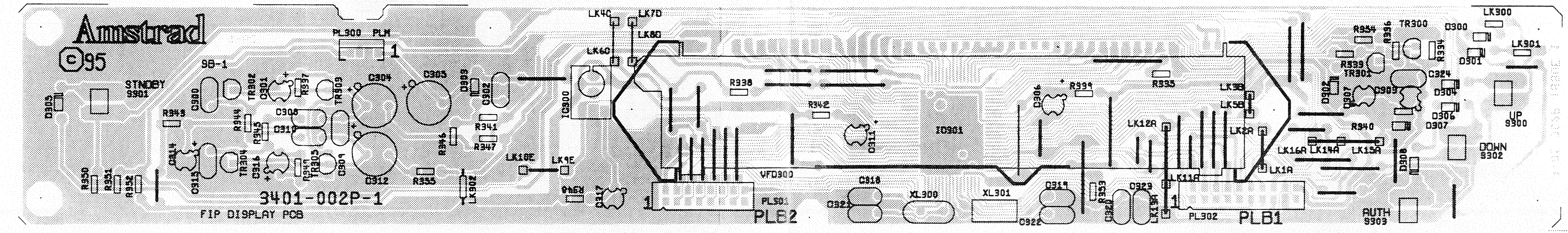

Amstrad
TR705
SK700
R715
R719
TR704
R717
R718
PL701
IC700
R707
C707
C708
C710
TR700
R703
R702
PL700
R700
R701
C700
C701
C702
C709
SB-1
©95
3401-015P-2

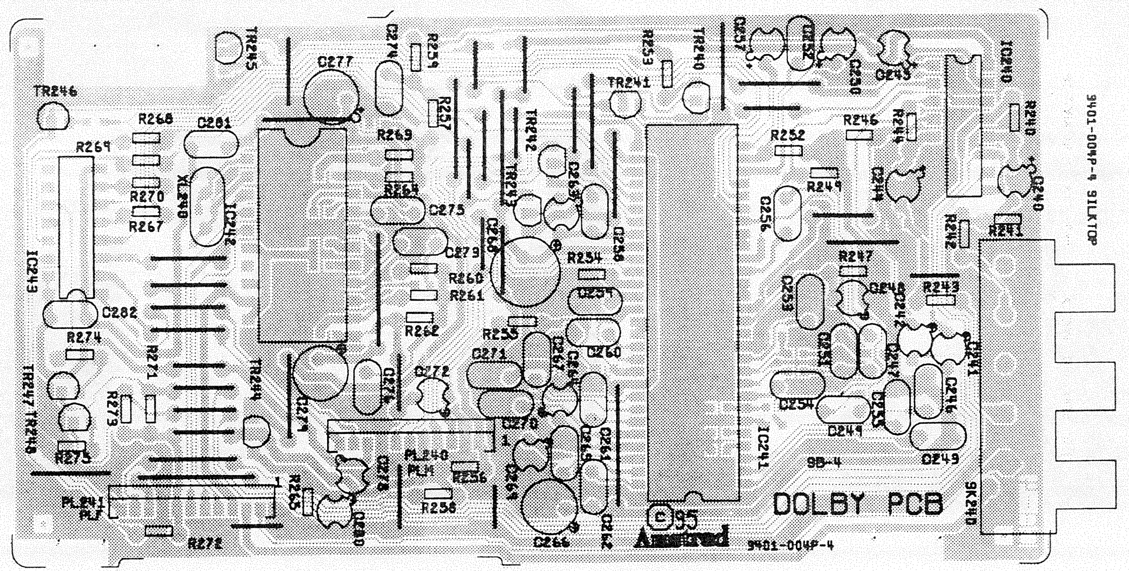
Piggy Back PCB Component Layout

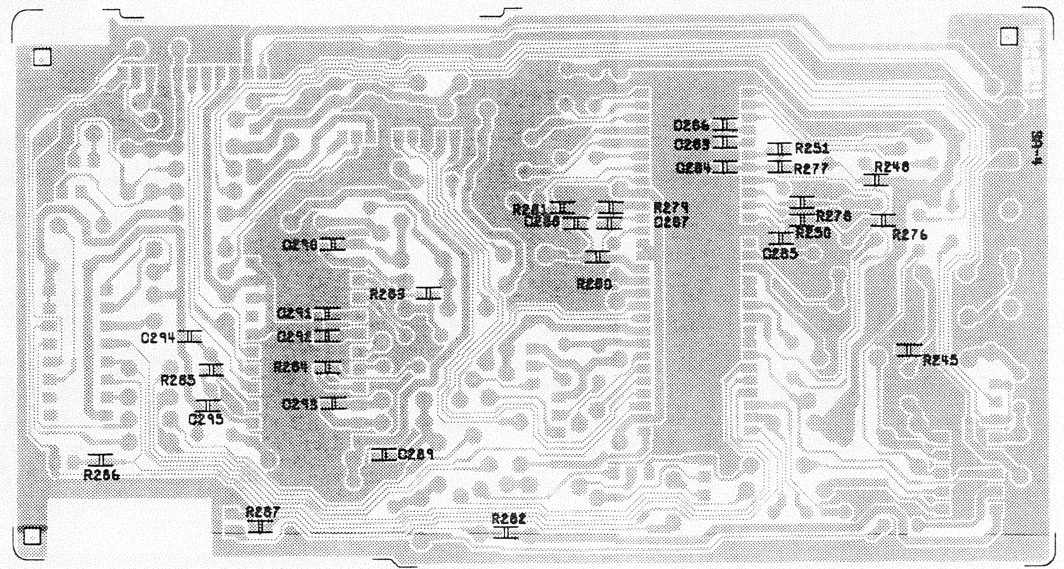

3401-011P4
TR300
R301
C301
Amstrad
©94
PL302
IC305
IC306
C312
SK302
SK300
SK303
SK301
IC302
R303
R302
XL301
XL300
C303
IC301
PLB2
PLB1
TR302
D308
D302
D309
D303
IC304
IC303
R312
D301
LX301
R311
R310
R309


3401-011P-4
©94
Amstrad

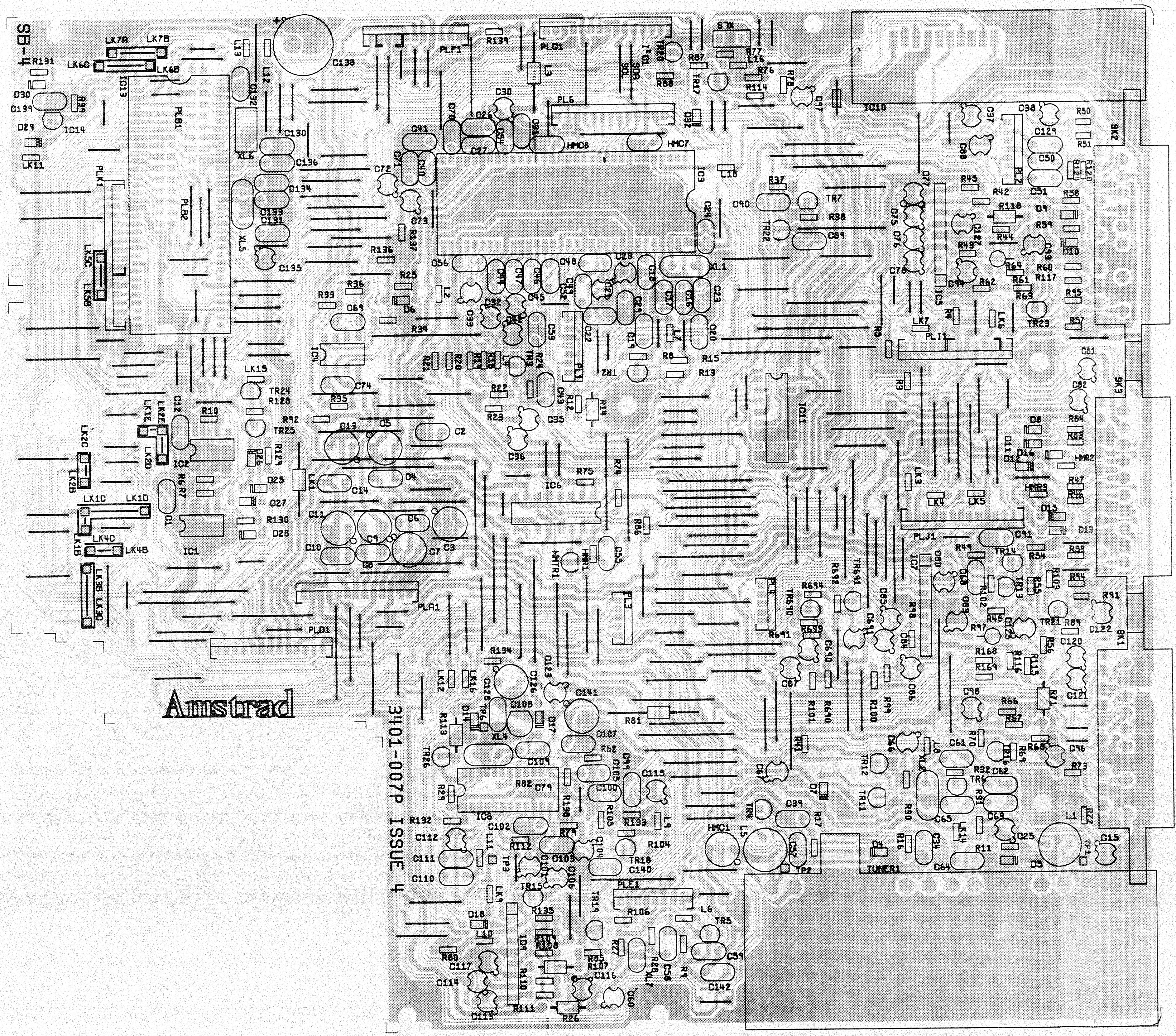
Front & Prologic PCB Component Layout


Amstrad
©95
3401-002P-1
FIP DISPLAY PCB
STNDBY S901
PL900 PLM
VFD900
IC900
IC901
PLS01
PLB2
PL302
PLB1
XL900
XL301
UP S900
DOWN S302
AUTH S303
TR300
LK900
LK901

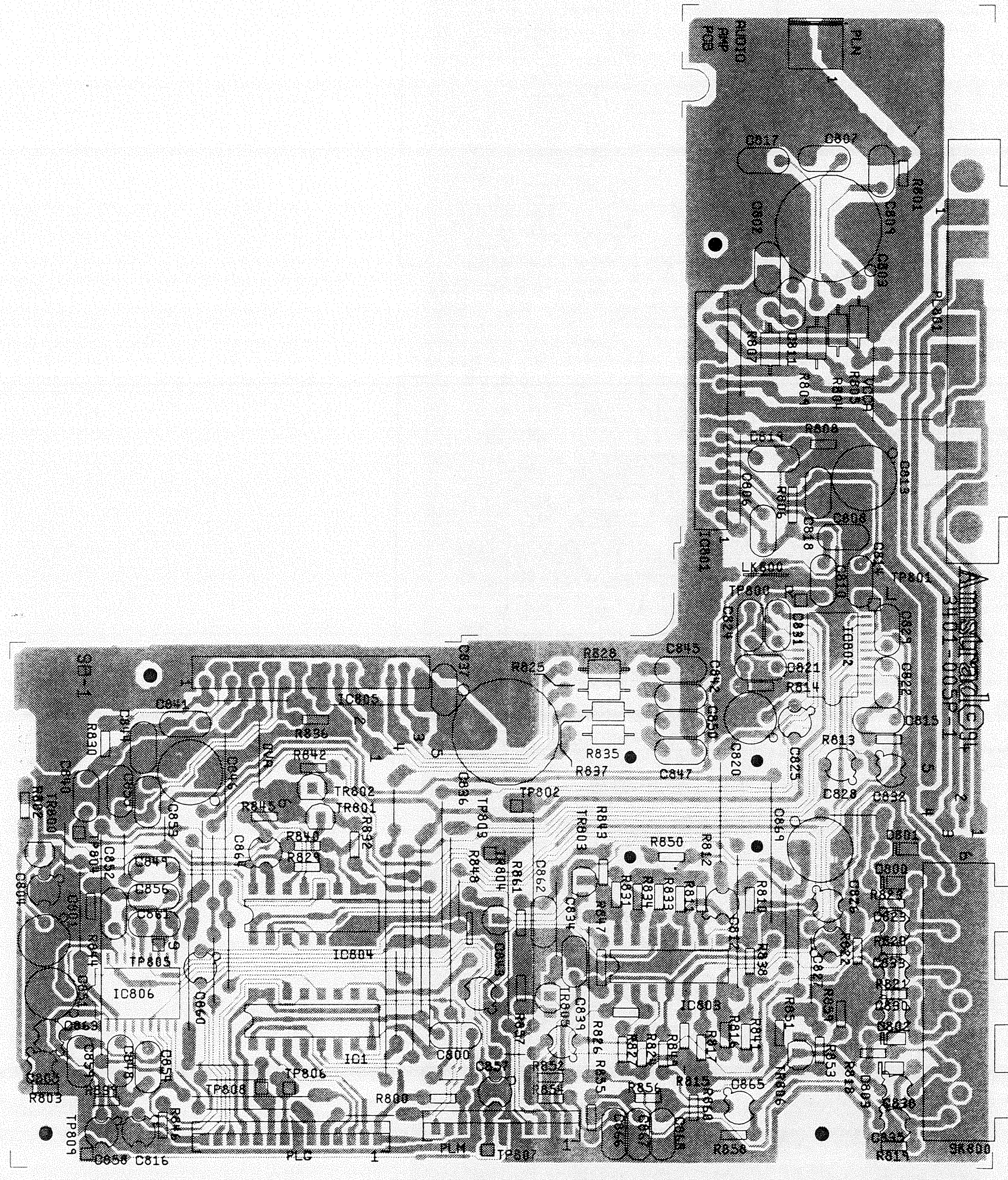

DOLBY PCB
©95
Amstrad
3401-004P-4
3401-004P-4 SILKTOP
IC240
IC241
IC242
IC243
SK240
PL240 PLM
PL241 PLF
XL240
SB-4



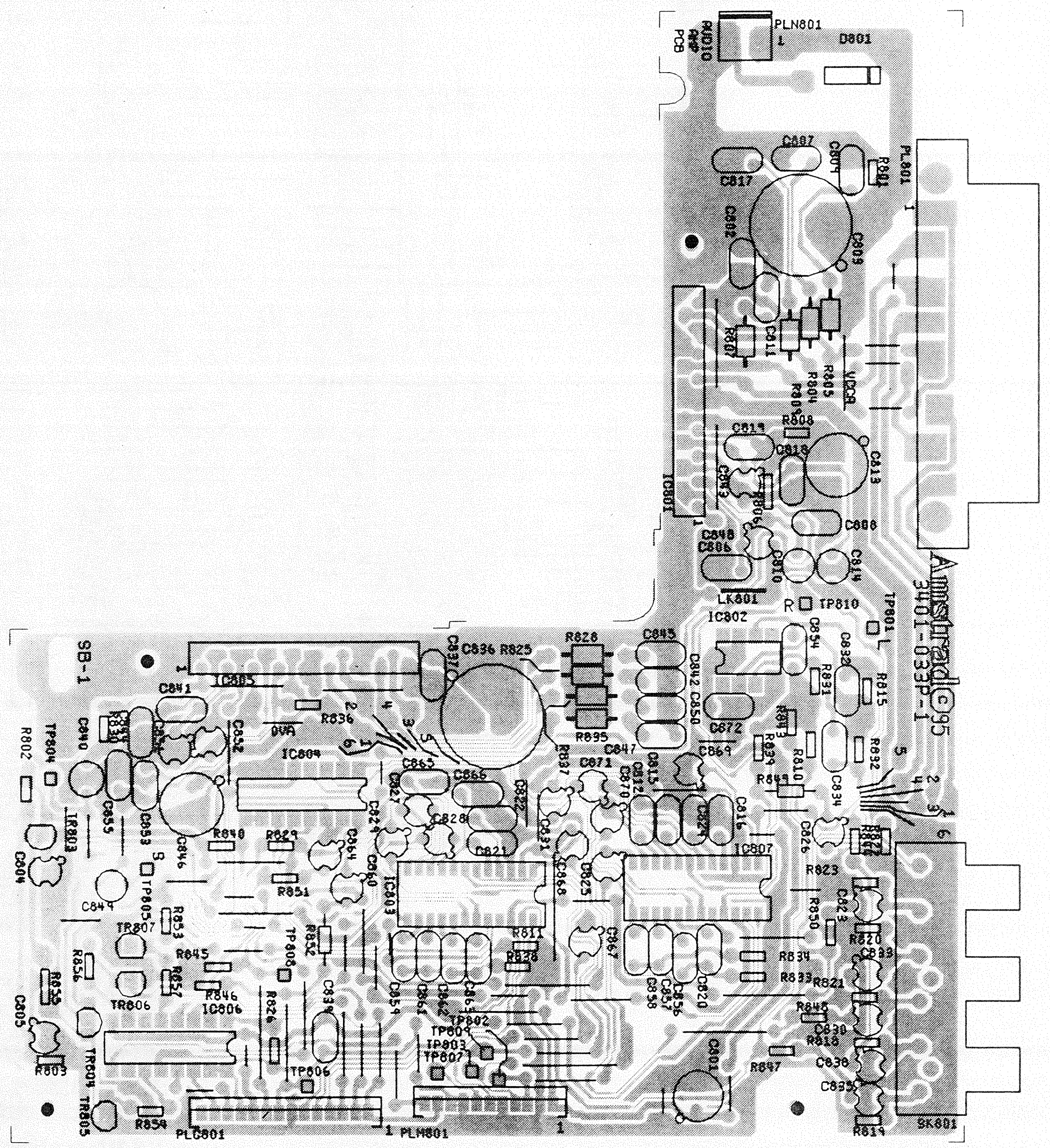
Main PCB Component Layout


Amstrad
3401-007P ISSUE 4

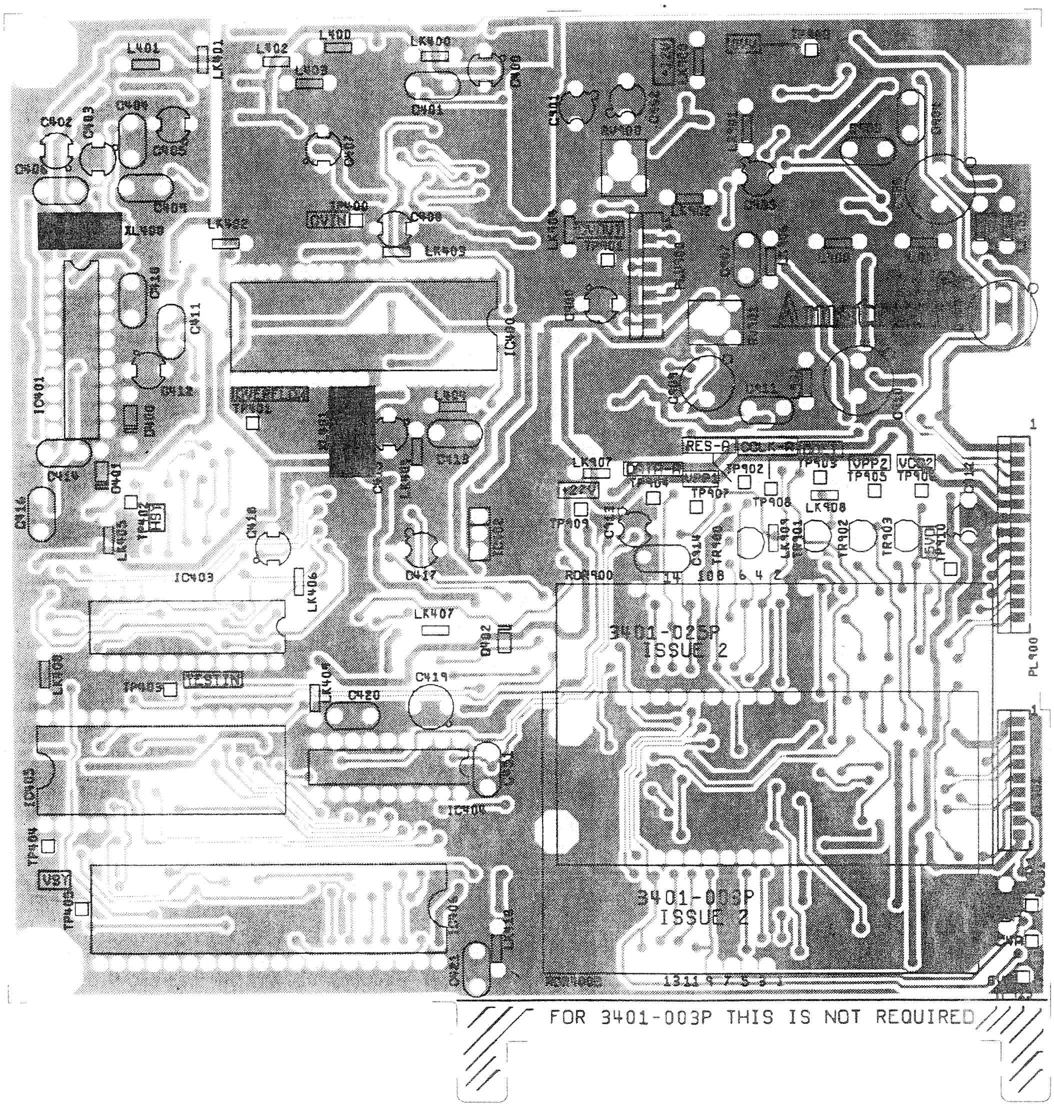
Audio PCB Component Layout MkI


AUDIO AMP PCB
PLN
PLD801
SB-1
IC801
IC802
IC803
IC804
IC805
IC806
SK800
PLC
PLM
Amstrad (c) 94
3401-033P-1

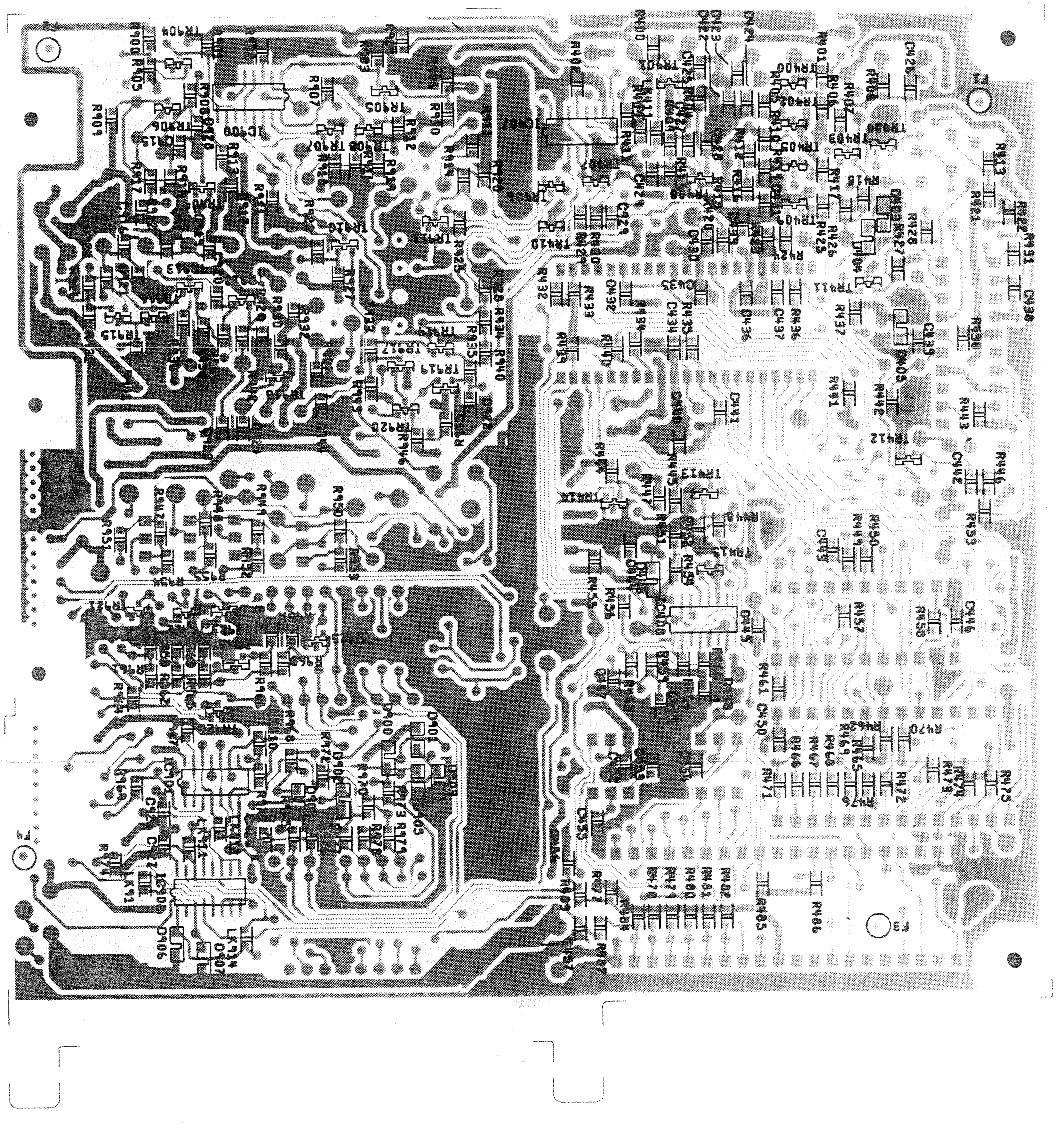
Audio PCB Component Layout MkII


AUDIO AMP PCB
PLN801
D801
PLD801
SB-1
IC801
IC802
IC803
IC804
IC805
IC806
IC807
LK801
TP810
SK801
PLC801
PLM801
Amstrad (c) 95
3401-033P-1

Videocrypt Decoder PCB Top Component Layout


L401
LK401
L402
L403
L400
LK400
C400
C402
C403
C404
C405
C406
C409
C401
C407
TP400
DVIN
C408
LK403
LK402
XL400
C410
C411
IC401
C412
D410
IC400
TP401
TP402
C413
C414
C415
C416
C417
C418
C419
C420
C421
IC403
LK405
LK406
LK407
LK408
LK409
TP403
TESTIN
IC405
IC404
TP404
TP405
VSY
IC406
RV900
C901
C902
C903
TR900
TR901
TR902
TR903
TP902
TP903
TP904
TP905
TP906
TP907
TP908
TP909
TP910
VPP1
VPP2
VCC2
RES-A
CLK-A
LK907
LK908
LK909
+5VD
RDR900
3401-025P
ISSUE 2
3401-003P
ISSUE 2
PL900
1
FOR 3401-003P THIS IS NOT REQUIRED

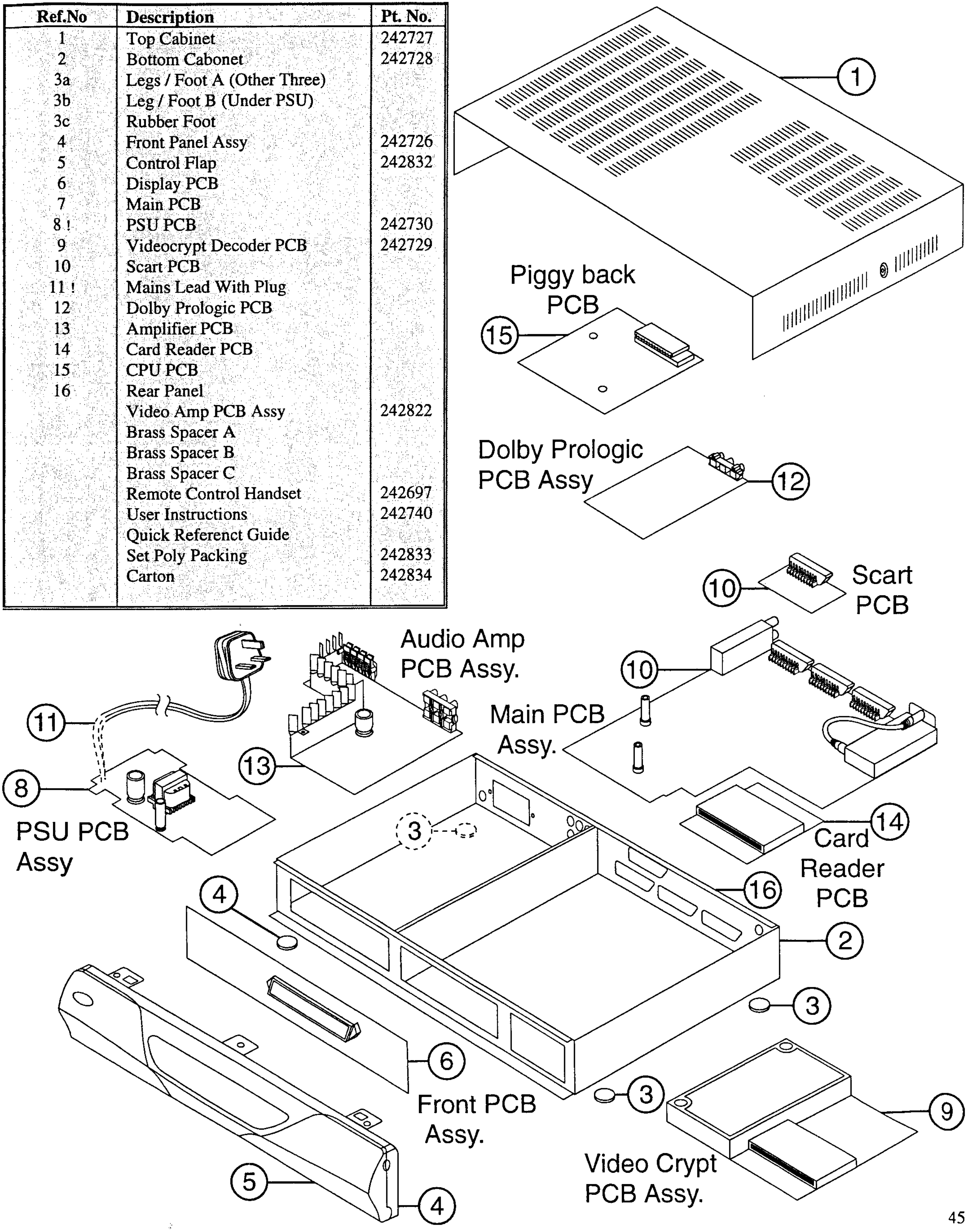
Videocrypt Decoder PCB Bottom Component Layout



SRD2000

Cabinet Parts List

Ref.No	Description	Pt. No.
1	Top Cabinet	242727
2	Bottom Cabonet	242728
3a	Legs / Foot A (Other Three)	
3b	Leg / Foot B (Under PSU)	
3c	Rubber Foot	
4	Front Panel Assy	242726
5	Control Flap	242832
6	Display PCB	
7	Main PCB	
8 !	PSU PCB	242730
9	Videocrypt Decoder PCB	242729
10	Scart PCB	
11 !	Mains Lead With Plug	
12	Dolby Prologic PCB	
13	Amplifier PCB	
14	Card Reader PCB	
15	CPU PCB	
16	Rear Panel	
	Video Amp PCB Assy	242822
	Brass Spacer A	
	Brass Spacer B	
	Brass Spacer C	
	Remote Control Handset	242697
	User Instructions	242740
	Quick Referenct Guide	
	Set Poly Packing	242833
	Carton	242834


1
Piggy back PCB
15
Dolby Prologic PCB Assy
12
10
Scart PCB
Audio Amp PCB Assy.
10
Main PCB Assy.
11
13
8
PSU PCB Assy
3
14
Card Reader PCB
16
4
2
3
6
Front PCB Assy.
3
9
Video Crypt PCB Assy.
5
4

Electrical Parts List

Ref.No	Description	Pt. No.
	ICs	
IC1,2	IC 24C16P EEPROM	242222
IC3	IC MSP3400 TC15 Audio Sig Pro	242422
IC4	IC TL072CP Dual Op-Amp	242331
IC5,7,9	IC LA7952 Switch	250573
IC6,11,12 240,700,804	IC MC14053	242412
IC8	IC KS5514 OSD	242423
IC10	RF Modular HL-RMBP-EU36AM	242424
IC241	IC NJM2177AL Dolby Dec.	242707
IC242	IC NJU9701 Dolby Delay	242706
IC243,800	IC MC14094B	242708
IC404	IC PTV113 Card Controller	242702
IC300 Piggy	IC 27C512 V1.0 EPROM	242835
IC406	IC PTV115 Verifier CPU	242704
IC301 Piggy	IC 74HC573 SMD	242470
IC402	IC PST600C Reset	242814
IC403	IC TEC-VCT02 / PTV114 OSD	242703
IC302 Piggy	IC UPD78013 Micro	242471
IC400	IC PTV110 Video Descrambler	242699
IC405	IC PTV112 Decoder CPU	242701
IC304 Piggy	IC PST6001 Switch Con	242473
IC408	IC 74LS04 SMD	242186
IC401	IC PTV111 Sync Separator	242700
IC901	IC 74HCT08 SMD	242255
IC407,900 902	IC HE4053BT	242731
IC300	IC RPM-638CBR-L IR Sensor	242466
IC301	IC UPD78042	242710
IC600	IC CNY17F-3X Opto Coupler	242458
IC601	IC TLP431CLP Shunt Regulator	242455
IC602	IC LM2574-ADJ	242456
IC603	IC LM2937ET-12	242459
IC604 !	IC TOP204VA Regulator	242722
IC801,805	IC TA8210AH Power Amp	242713
IC802,806	IC TEA6330T	242714
IC803	IC TL074CN	242715
IC240,804	IC MC14053BCP	242412
	Transistors	
Tr5,19,22 27,34,36,37 242,243,300 691,705,HM1 302 Piggy	Tr 2SA933	150874
Tr2,3,6,7,13-18,20,21,23 26,28-33,35 38-41,244-248,301,690 700-704,801 802,804-806	Tr 2SC1740	50016

Ref.No	Description	Pt. No.
	Transistors (continued)	
Tr4,5,401-404 404,407,409-411,909,911 915,917,918	Tr 2SA1037	253105
Tr1-3,6-8,400 405,406,408 412-415, 904-908,910, 912-914,916	Tr 2SC2412	242332
Tr11	Tr DTA114E	273263
Tr12	Tr DTC124ESA	152050
Tr900-903	Tr 2SA608 E	270580
Tr303,305	Tr 2SA854S-R	250579
Tr302,304 800	Tr 2SC1741S-R	152038
Tr240,241 803	Tr 2SC1317	200239
	Diodes	
D5	DZ 27V ½w	
D6-10,12-17 32,300-302, 304,308,400 401,604 700-704 800-803 900-907 980-987	D 1N4148	270754
302,303,308 309	**PIGGY**	
D403-406 900-907	D LL4148 SMD	242247
D300	RB441Q **PIGGY**	242725
D4,303,	DZ 5V6 ½W	
D18	DZ 5V1	
D402	D BAAT41	
D601	D DF10M BRIDGE	241403
D602	D 1.5KE300 5W	242721
D603	D SRP100K	242447
D605,611	D RL2Z	240723
D606	D BAT42	242450
D607	D RL3Z	242718
D608,615	D SRP100G	242448
D613	DZ RD8.2EB	242435
D609	D S2L40	242717
D610	D SF6L20U / FML-G12S	242720

Ref.No	Description	Pt. No.
	CoilS	
L1	Coil 100µH 700MA Axial	
L2	Coil 100µH	
L3,5,Pll to 5	Coil 100µH SP0406 Type	
L4,6	Coil 12µH	
L7,9,18	Coil 8.2µH	
Beside IC10		
402,403,902		
L400,903	Coil 10µH	
LK401		
L10	Coil 47µH	
L12,13	Coil 4.7µH	
L14,900	Coil 3.3µH	
L15,901	Coil 3.9µH	
L401	Coil 39µH	
L404	Coil 1µH	
L306	Coil 3.3µH	
L600,601	Coil 2MH 500mA UU9LF Type	
L602	Coil RCR110D-102L	
L603	Coil 662LY-330K 8RHB Type 2A	
	Crystals	
XL1	Crystal OSC 18M432 30ppm	241021
XL2	Crystal 4MHz 20ppm	242407
XL3	Crystal TPW03B	
XL4	Crystal 17M73447	241640
XL7	Trap Filter TPS4.43MJ	242698
XL204	Resonator 2MHz	240095
XL401	Crystal Osc 28MHz	240397
XL300	Crystal 32K768Hz Piggy	204667
XL400	Crystal Osc 503KHz	242817
XL301	Resonator 4MHz HC18/U Piggy	242474
XL300	Crystal Resonator 2M0Hz	240095
	Miscellaneous	
SK1-3,700	Scart Socket 21 Pin	153030
VFD300	FIP Display 11MT95GK	242711
TUNET1	Tuner RWT1520	242426
VR901	VRSF 1k Ω	
VR900	VRSF 200 Ω	
VR600	VRSF 2.2k Ω	242735
RDR300,900	Card Reader Socket	40463
IC980		
SK204	Socket 3 Phono 2 Switch LPR6529-1400	242709
SK800	Phono Skt 6 Way LPR6520-3401	242716
S300-303	Switch SPST	242712
T600 !	Transformer LLP200T 85W	242724
FS600 !	Fuse 2A 250V	240082
C108	Variable Capacitor 30pF	
C300	0.1F Micro Backup Cap piggy	204810
!	Mains Lead (Replace plug)	240681

Ref.No	Description	Pt. No.
	Miscellaneous (Continued)	
	RF Cable	153048
	User Instructions	242740
	Spacer IR Sensor	

Description	Ref. No.	Pt. No.
	Resistors 1/10w Chip 0805	
	5% Unless Stated	
10 Ω	R362,412-415	
20 Ω	R283,284	
56 Ω	R328-335	
75 Ω	R357	
100 Ω	R16,310,321,324,325,364,	
120 Ω	R450,451	
130 Ω	R15	
150 Ω	R9,346,437	
220 Ω	R17,356	
240 Ω	R14	
270 Ω	R10	
330 Ω	R353,360,361,368	
390 Ω	R359,420	
470 Ω	R1,5,6,8,18,338,352,377,386	
	393,394,440,	
620 Ω	R365	
680 Ω	R351,405	
	309,311 PIGGY	
750 Ω	R430	
820 Ω	R387	
1k Ω	R7,13,300,341,347,348,355,366	
	369,376,388-392,395,396,424	
	427,428,434,435,442,449,456	
1.2k Ω	R310 PIGGY	
1.5k Ω	R326	
1.8k Ω	R409	
2.2k Ω	R345,417,447	
2.7k Ω	R242,373,374	
3.3k Ω	R307,322	
3.32k Ω	R384	
3.9k Ω 1%	R323	
3.9k Ω	R4,382,383	
4.7k Ω	R339,350,363,380,418	
5.6k Ω	R379	
6.2k Ω	R344	
7.5k Ω	R251,278	
8.2k Ω	R3	
10k Ω	R2,12,301-306,311,313-320,336	
	378,397-404,406-408,410,411	
	441,457	
	300,303,304 PIGGY	
12k Ω	R11,340,448	

Description	Ref. No.	Pt. No.
	Chip 1/10w 0805(Continued)	
15k Ω	R248,276,279,280	
18k Ω	R426	
22k Ω	R342	
33k Ω	R312,375	
47k Ω	R250,277,286,425	
56k Ω	R385	
100k Ω 1%	R282	
100k Ω	R312 Piggy	
220k Ω	R245	
270k Ω	R381	
330k Ω	R281,287	
1M Ω	R285,327	
	Resistors 1/8w	
	5% Unless Stated	
0 Ω	R459,483,487	
1 Ω	R256	
1.8 Ω	R343	
3.3 Ω	R256,618	242733
5.6 Ω	R339	
8.2 Ω	R342	
10 Ω	R623,975,977-979,981-984	240122
22Ω	R934	
33 Ω	R348	
39 Ω	R708	
47 Ω	R22,605,607	
51 Ω	R463	
56 Ω	R466-469,471-473,476	
68 Ω	R15,73	
75 Ω	R28,53,57,72,95,139,705,718	
82 Ω	R149,692,941	
100 Ω	R18-21,29,52,63,70,94,106,341 344,345,347,353,420,434,440 456,621,701,852,859,933,969 971,Series with R852	
120 Ω	R148,918	
130 Ω	R155,914,946	
150 Ω	R78,104,913,925,942	
180 Ω	R69,940	
200Ω	R928	
220 Ω	R60,68,117,401,410,911	
240 Ω	R90,945	
270 Ω	R134,407,408,930	
300 Ω	R103,429	
330 Ω	R77,404,414,416,423-425,693 694,857,920,931	
390 Ω	R153,859	
470 Ω	R46,47,405,422,441,613,908 915,929,935,936,938,953,954	

Description	Ref. No.	Pt. No.
	Resistors (Continued)	
560 Ω	R133,802	
680 Ω	R49,54,412,967	
750 Ω	R17	
820 Ω	R442,709	
1k Ω 1%	R609,617	
1k Ω	R11,27,48,79,85,87,102,132 134,140,141,143,145,151 159,162,337,349,400,406,411 415,419,427,453,612,903,907 909,912	
1.1k Ω 1%	R614	
1.2k Ω	R114,409,926	
1.3k Ω	R857	
1.5k Ω	R165,426,430,458,916, Tr806 Collector to 9V link	
1.6k Ω	R23,702	
1.8k Ω	R902,973,985	
2k Ω	R265,861	
2.2k Ω	R8,91,258,403,417,900,976,988	
2.7k Ω	R9,242,243,334,336,418,421 438,803	
3.3k Ω 1%	R443,611	
3.3k Ω	R31,55,449,450,485	
3.6k Ω	R846	
3.9k Ω 1%	R615	
3.9k Ω	R16,62,66,350,413,452,906	
4.3k Ω	R852	
4.7k Ω	R3,5-7,10,12,13,24,25,41,89 135,338,446,451,454,622,710 806,845,846,861	
5.1k Ω	R8	
5.6k Ω	R56,264,267,269,448,860	
6.8k Ω	R61,67,910	
7.5k Ω	R257	
8.2k Ω	R259	
10k Ω 1%	R608	
10k Ω	R4,33,34,37,58,59,92,142,147 160,167,268,270,333,402,432, ,433,437,439,461,462,465,470 474,475,690,691,704,800,801 806,808,813,814,830,836,839, 844,847,901,903,904,921,980 986,987,Pll to D15,16	
12k Ω 1%	R944	
12k Ω	R82,138,436	
13k Ω	R854-856	
15k Ω 1%	R260,262	
15k Ω	R255,455,716	
16k Ω	R35,36	
18k Ω	R158,261,263,812,817,827,834	

Description	Ref. No.	Pt. No.
	Resistors(Continued)	
20k Ω	R38	
22k Ω	R246,249,272,444,447,703,707 712,843,900,923,927	
27k Ω	R274,275,829,832,840,842	
30k Ω	R838,841	
33k Ω	R88,457,714	
36k Ω	R810,816,826,831	
47k Ω	R32,50,51,115,116,120,124,271 273,811,815,824,833,848,850 922	
56k Ω	R30,713,719	
62k Ω	R858	
68k Ω	R335,853	
82k Ω	R65,943	
100k Ω1%	R254	
100k Ω	R38,80,136,137,252,253,340 346,445,600,601,603,604,711 818-823,964	
220k Ω	R112,241,715,717	
270k Ω	R431	
330k Ω	R98,853	
390k Ω	R42-45,99-101,108-111	
470k Ω	R428	
1M Ω	R74,75,86,240,244,435,700,706	
4.7M Ω	R247	
	Resistors ¼W	
0 Ω	R354,355	
2.2 Ω	R804,805,807,809,825,828,835 837	202673
100 Ω	R616	
1.5K Ω	R619	
2.2k Ω	R HMR1	
1M Ω	R602	242734
	Resistors	
820 Ω 1W	R619	
1K Ω 1W	R606	
2.2K Ω ½W	R622	
	Fuse Resistors	
10 Ω ¼W	R14,26,64,71,81,97,107,113 118,LK900	273399

Description	Ref. No.	Pt. No.
	Capacitors	
	Electrolytic	
0.33µF 16V	C104,862	
1µF 16V np	C810,814,840,849	242732
1µF 50V	C72,73,112,316,245,272,412 418,612,812,825,827,828,839 843,857,858	
1µF 50V npo	C810,814,840,849	
2.2µF 6.3V	C816	
3.3µF 16V	C45	
4.7µF 16V	C101,264,269,403,417	
4.7µF 50V	C617	
10µF 6.3V	C507,515	
10µF 25V	C2,3,21,28,30,32,33,42,60,66 75-78,80-82,84-88,93,94,96,97 106,113-116,120-123,135,149 156,240-242,244,250,263,278 280,317,402,407,416,690,700 701,703,708-710,804,805,823 826,830,833,835,838,860,864 865,901,905 C310 piggy	
10µF 35V	C15,D7 Cathode to TR12 Emitter	
22µF 6.3V	C300,308,832,863	
22µF 16V	C35-38,83,98,117,127,163,257 400,408,415,691,832,863,900	
22µF 16V	C248 low leakage	193425
22µF25V	C603	
33µF 16V	C10,159,909	
47µF 16V	C279,303,306,311,606 1-3 Fip panel	
100µF 6.3V	C1,55,162,360, 11 scart	
100µF 10V	C623	
100µF 16V	C3,5,7,9,55,125,126,141 277,301,314,316,405,621,623 801,820,851,902,906,908,910 912,702,706	
100µF 25V yxa type	C616	242444
100µF 35V	C11,13,419,618,626	
100µF 400V !wxa type	C605	270614
220µF 6.3V	C620,869	
220µF 10V	C869,HMC1	
220µF 16V	C266,268,813,846	
220µF 25V	C266,268,813,846	
220µF 35V	C304,305,312,	
220µF 35V yxb type	C610	242427
1000µF	C614	

Description	Ref. No.	Pt. No.
	Electrolytic Continued	
2200µF 25V	C836	
330µF 6.3V	C620	
470µF 10V	C619	
470µF 16V yxb type	C614	242428
1000µF 10V yxb type	C613	
1000µF 16V	C852-866	
2200µF 25V yxb type	C611,836	157653
4700µF 25V	C803	
	Ceramic npo Radial	
1.5pF	C23,24	
10pF	C TR13 B/V00, TR14 B/V00	
18pF	C19	
22pF	C79,318,321	
33pF	C19,58,59,64,128	
39pF	C105	
47pF	C16,17,109,IC400 PIn 17 & 21	
47pF 1kV !	C604	242438
56pF	C18,61,309	
68pF	C39,110,111	
82pF	C150,152	
100pF	C63,99,100,102	
100pF 1kV !	C625	176344
150pF	C65	
200pF	C145,146	
270pF	C142	
330pF	C69,74	
390pF	C40,41	
470pF	C46,47	
680pF	C69,74	
1200pF	C103	
0.001µF	C26,27,70,71,806,808,818 819,841,844,853,855	
0.0012µF	C148	
0.0022µF	C608 !	
0.0033uf	C276	
0.0047µF	C252,300,308,310,315,406	
0.0056µF	C259,274,829,831,859,861	
0.01µF	C34,3620,627,RD900 pin 17 to 19 914,980,981,IC980 pin 17 to 19	
0.022µF	C79,900	
0.033µF	C276,404	
0.047µF	C253,254,260	
0.056µF	C259,274	

Description	Ref. No.	Pt. No.
0.1µF	C1,2,4,6,8,10,12,14,20,22, 29,31,43,44,56,62,131,132 140,161,243,246,247,249,251 255,256,262,273,275,281,282 302,401,410,411,413,420, 607,609,624,704,705,707 800,802,815,821,822,824 834,837,848,852,856,866-868 907,Bet pin 1 & 2 of IC603	
0.1µF x2 type	600,601	242736
0.22µF	C54,258,261,265,267,270,345 349	
0.33µF	C48-53,129,	
0.47µF	C901	
0.47µF	C8,143,253,254,260,357,HMC7 8	
0.68µF	C271	
	Ceramic Chip 0805	
15pF	C304,305 Piggy	
18pF	C929	
22pF	C430,441,446,917	
27pF	C425 306,307 piggy	
33pF	C426,429	
47pF	C427,440	
56pF	C6,294,295,423,434,923	
68pF	C5,431,920	
82pF	C919	
100pF	C428,442	
150pF	C422,424,915,916	
180pF	C924	
200pF	C918,921	
220pF	C294,295	
330pF	C922	
470pF	C287,290,293,443	
680pF	C284,285	
2200pF	C288	
5600pF	C289	
0.001µF	C372	
0.0022µF	C283,286	
0.0033µF	C439	
0.0047µF	C438	
0.01µF	C432,433,444,455,925,926	
0.022µF	C283,286,448,450,927	
0.047µF	C291,292,454	
0.1µF	C435-437,445,453 301-303 piggy	
0.22µF	C308 Piggy	

Description	Ref. No.	Pt. No.
	Metal Film	
0.1µF	C600,601	
	Polyester	
0.001µF	C903	
0.1µF	C607,609,624	
0.15µF	C807,809,811,817,842,845,847 850	
0.22µF	C54,258,261,265,267,270,307, 409,414,451	
0.33µF	C48-53,129,862	
0.47µF	C911	
0.68µF	C271	

Amstrad reserves the right to supply selective components.

Electrical parts List

Audio PCB MkII

⁎ Note ⁎

This version of Audio Amp PCB is used from Serial No. GE********

Ref. No.	Description	Pt. No.
	ICs	
IC300	IC 27C512 2SGO V1.2	242836
IC801,805	IC TA8210AH	242713
IC802	IC LM741	
IC803,807	IC TDA7314S	
IC804	IC MC14053	242412
IC806	IC MC14094B	242708
	Transistor	
TR803	Tr. 2SC1741	152038
TR804	Tr. 2SC1317	200239
TR805-807	Tr. 2SC1740	50016
	Miscellaneous	
SK801	Six Phono Socket	242716

Description	Ref. No.	Pt. No.
	Resistors	
2.2 Ω	R804,805,807,809,825,828,835 837	
100 Ω	R844,847-850	
300 Ω	R851,852	
560 Ω 1%	R802	
2.7k Ω 1%	R803	
4.7k Ω	R845,846	
5.6k Ω	R811,833,834,838	
7.5k Ω	R832	
10k Ω	R801,808,815,826,830,836	
27k Ω	R829,840,856,857	
33k Ω	R831	
47k Ω	R853,854	
75k Ω	R810,839	
100k Ω	R818-823	
200k Ω	R843	
	Capacitors	
	Electrolytic	
1uf 6.3V	C825,827-829,831,867,870,871	
10uf 10V	C804,805,823,826,830,833,835 838,860,864	
22uf 6.2V	C868,869	
100uf 16V	C801	
220uf 10V	C813,846	
2200uf 25V	C836	
4700uf 25V	C803	
	Ceramic	
0.001uf	C806,808,818,819,841,844,853 855	
0.047uf	C834,854	
0.1uf	C802,812,815,820,837,839,856-859,862,863,865,866,872	
0.15uf	c807,809,811,817,842,845,847 850	
1uf np	C810,814,840,849	